MODIFIED GOODNESS-OF-FIT TESTS FOR THE INVERSE GAUSSIAN DISTRIBUTION WITH TWO UNKNOWN PARAMETER

THESIS

Hüseyin GÜNEŞ
First Lieutenant

AFIT/GOR/ENC/ENS/95M-10

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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Hüseyin Günes, B.S.

First Lieutenant, TUAF

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Preface

This thesis develops goodness-of-fit tests for the inverse Gaussian distribution with parameters estimated from the sample. The complete critical value tables are presented for Kolmogorov-Smirnov, Anderson-Darling, Cramer-von Mises, Kupier, and Watson tests. These can be used to test whether sample data follows an inverse Gaussian distribution. Additionally, the power tables are presented for the five empirical distribution function (EDF) tests and sequential tests. Power comparison are made. Finally the functional relationship between the critical values and the inverse Gaussian shape parameter and sample size is determined.

I especially wish to express my gratitude to my advisor, Prof. Albert H. Moore, for this research topic, his suggestions, and encouragement. His continued interest in this work served as motivation in its completion. I also wish to thank my readers, Lieutenant Colonel Dennis C. Dietz and Lieutenant Colonel Paul F. Auclair for their helps and valuable suggestions. My gratitude extends to the faculty members of Department of Operational Sciences for their guidance throughout my AFIT tour. I would like to thank my classmates who never let me feel lonely during those hard times, especially Duman and Iyde. And thank you , Tricia and Paul Campbell for your friendship and support.

I would like to take this opportunity to thank my mom for all she has done for me so far. Finally, I wish to thank my lovely wife, Zeynep, for her love and understanding during the study at AFIT.

Hüseyin Günes

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Abstract

Modified Kolmogorov-Smirnov (KS), Anderson-Darling (AD), Cramer-von Mises (CV), Kupier (V), and Watson (W) goodness-of-fit tests are generated for the inverse Gaussian distribution with unknown parameters. The inverse Gaussian parameters are estimated by maximum likelihood estimation. A Monte Carlo simulation of 50,000 repetitions is used to generate critical values for sample sizes of 5 through 50 with an increment of five, sample sizes of 60 through 100 with an increment of 10, and 24 different values of the inverse Gaussian shape parameter.

A 50,000-repetition Monte Carlo power study is carried out using data with sample sizes of 5 through 100 from five alternate distributions for the five EDF tests for significance levels of 0.01, 0.05, 0.10, 0.15, and 0.20. For sequential tests, power studies are performed for the significance levels produced by combining two EDF tests. Power studies corresponding two both cases are presented in tables and graphs. The power studies showed that the tests are excellent in discriminating between the inverse Gaussian and distributions such as the gamma, exponential and uniform that are very different in shape. However, they are relatively unable to discriminate between the inverse Gaussian distribution and distributions that are similar in shape such as the lognormal and certain Weibull distributions with shape similar to the particular inverse Gaussian. The AD test has the highest power in most cases studied.

A functional relationship is identified between the modified KS, AD, CV, V, and W test statistics, sample size, and the inverse Gaussian shape parameter. The critical values are found to be a non-linear function of the shape parameters and sample sizes for the significance levels of 0.01, 0.05, 0.10, 0.15, and 0.20.

MODIFIED GOODNESS-OF-FIT TESTS FOR INVERSE GAUSSIAN DISTRIBUTION WITH TWO UNKNOWN PARAMETERS

I. Introduction

1.1 Background

The Air Force depends on advance technology to perform its missions. However, due to a shrinking budget, the analysis of complex systems, and the improvement of systems' reliability and maintainability are becoming more difficult. Economic pressures have forced analysts and designers to derive more insight from limited test data through simulation and statistical techniques. In developing a valid statistical model of the observed data, they perform four basic steps:

1. Collect and plot the raw data to develop a histogram.
2. Hypothesize the underlying statistical distribution of the data by comparing the histogram to probability density functions of known distributions.
3. Use the observed data to estimate parameters that characterize the distribution.
4. Test the distributional assumption and parameter estimates using goodness-of-fit tests. If the hypothesis (that the data follow the assumed distribution) fails, return to step 2 (assuming a different distribution) and repeat the process. (3:332)

Goodness-of-fit tests measure the degree of agreement between the distribution of an observed data sample and a postulated statistical distribution. Over the years, different types of goodness-of-fit tests have been developed for statistical distributions. However,

there are still some distributions which have not been examined fully. One such distribution, which can be used in Air Force applications, is the inverse Gaussian distribution.

The inverse Gaussian distribution is a well-known distribution with properties and applications similar to those of normal distribution.(11) In the early 1970s, a number of authors published documents describing the inverse Gaussian distribution and its uses in reliability and statistical analysis.

The inverse Gaussian distribution was first described as the distribution of the first passage time of a Brownian motion with positive drift. In 1828, Robert Brown (1773-1858), a famous British botanist, observed some strange motion of pollen particles when they were immersed in water. After further research, this motion was accepted as a physical phenomenon rather than a biological one. In 1915, Schrödinger and Smoluchowski separately obtained the distribution of the first passage time of Brownian motion with positive drift. In 1941, Tweedie noticed the inverse relationship between the cumulant-generating function of the time to cover unit distance and the cumulant-generating function of the distance covered in unit time. Because of this inverse statistical relationship, he named the first passage time distribution of the Brownian motion as inverse Gaussian distribution in 1956.(35) In 1947, Wald obtained a special case of inverse Gaussian distribution as an approximation of the sample size distribution in a sequential probability ratio test. Therefore, the inverse Gaussian distribution is sometimes known as the Wald distribution.(36)

The family of inverse Gaussian distribution is fairly wide. Its shape can vary from skewed to almost symmetric. This characteristic offers promise for practioners who have reluctantly relied on the normal distribution in evaluating skewed data.

Although the traditional distributions such as lognormal, gamma, and Weibull are used extensively for skewed data, they cannot be applied for a wide range of statistical

methods usually based on the normal distribution, such as ANOVA, two-sample t tests, regression analysis, confidence intervals, and so on. Chhikara writes:

> When confronted with skewed distributions, investigators usually resort to a transformation in order to normalize the data. For example, the Box & Cox transformation (1964) is put forward partially because of the desire to eliminate skewness in data. Although it may be true, for example, that the reciprocal of the response variable is better described by an experimental design model than the response variable itself, there is still a major problem of interpretation involved when we consider the data analysis using the transformed variable. If possible, it is desirable to analyze the data as observed using statistical methods based on the skewed distribution. The authors feel that the application of the inverse Gaussian when appropriate can meet part of this need for skewed data analysis.(6:6)

In order to decide whether a data sample is distributed inverse Gaussian, a goodness-of-fit test must be applied to the data. The chi-square and the Kolmogorov-Smirnov (KS) tests are the most commonly used tests in goodness-of-fit studies. The chi-squared test compares frequencies of the observed data with expected frequencies of the hypothesized distribution. Although it is restricted to large sample sizes ($n \geq 25$), the test is flexible enough to allow some parameters to be estimated from the observed data. The Kolmogorov-Smirnov test compares the continuous cumulative distribution function (CDF) of the hypothesized distribution against the empirical cdf of the observed data sample. The test requires that the parameters of the distribution be specified. The Anderson-Darling (AD) and the Cramer-von Mises (CV) tests are Empirical Distribution Function (EDF) statistics similar to the KS test. They have the same limitations with KS test. Because of these limitations, statisticians have sought new goodness-of-fit tests, especially for frequently tested distributions.(7:357)

A significant breakthrough was made by David and Johnson in 1948. They found that when the invariant estimators of location and scale parameters were used , the CDF and EDF statistics would depend on the functional form of CDF, not on the estimated

parameters.(9) Thus, critical values will depend only on sample size and significance level for a completely specified CDF.

1.2 Problem Statement

Several authors have published papers on goodness-of-fit for the inverse Gaussian distribution. However, power studies for these tests showed that their powers are low in discriminating between the inverse Gaussian distribution and distributions that are similar in shape such as the lognormal and certain Weibull distributions. This thesis effort aims to develop tables for more powerful goodness-of-fit tests for the inverse Gaussian distribution and to compare the power of the tests with previously developed ones.

1.3 Methodology

The thesis will consist of three basic phases.

1. A Monte Carlo Simulation procedure will be applied to produce critical value tables for the modified goodness-of-fit tests for the inverse Gaussian distribution.

a) Critical value tables will be generated using Monte Carlo Simulation. To evaluate the effect of sample size, sample sizes (n) of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 will be used. Since standard computer library packages (e.g. IMSL) do not contain subroutines for the inverse Gaussian distribution, a computer program was written to generate Inverse Gaussian random variates.

b) The n random deviates will be ordered in ascending order.

c) The ordered random Inverse Gaussian deviates will be used to estimate the parameters by Maximum Likelihood Estimation (MLE).

d) The n ordered inverse Gaussian deviates will be used to calculate the hypothesized distribution function.

e) Based on the hypothesized and sample distributions the test statistics will be calculated. (Each of these five steps will be repeated 50,000 times to generate 50,000 independent statistical values.)

f) The 50,000 statistics for each of the tests and for each sample size will be ordered.

g) The 80th, 85th, 90th, 95th and 99th percentiles of the distributions of each test statistic will be calculated by linear interpolation. These percentiles will be the critical values for the modified test.

2. The powers of the sequential goodness-of-fit tests will be compared to determine which test can best detect a false Inverse Gaussian hypothesis. The power of a statistical test is the probability of correctly rejecting a false hypothesis.

Random deviates from several different distributions of sample size n will be generated using IMSL subroutines. The goodness-of-fit test statistics will then be calculated under the null hypothesis that the random deviated follow the inverse Gaussian distribution with the estimated parameters. Then the calculated statistic for each test will be compared to the corresponding critical value obtained in Phase 1. The number of times each statistic exceeds the respective critical value will be counted for each sample size. The power of the test for each alternative distribution will be the number of times the null hypothesis is rejected divided by the total number of random samples of size n. The resulting power values will be arranged in tabular form and analyzed to find out which test performs best for a given sample size and distribution.

3. The final step will be to determine a functional relationship between the parameters of Inverse Gaussian Distribution and the critical values generated. This relationship can then be used to interpolate critical values.

1.4 Scope

This thesis will evaluate several sequential tests which are acquired by combining some goodness-of-fit tests. Critical value tables for these tests will be generated and documented. The power study will determine which test gives the best power in identifying a false inverse Gaussian distribution data sample. The probabilities of

correctly rejecting a false hypothesis will be calculated. A functional relationship between parameters of the inverse Gaussian distribution and critical values of the test will be determined.

II. Literature Review

2.1 Introduction

This chapter briefly reviews the background literature for the inverse Gaussian distribution, goodness-of-fit tests (GOFTs), Monte Carlo simulation, random deviate generation, and the plotting positions technique since these subjects are crucial to the conclusion of the thesis.

2.2 Inverse Gaussian Distribution

Suppose a particle moves with a uniform velocity v along a line and the particle is also subject to linear Brownian motion which causes it to take a variable amount of time to cover a fixed distance d. It can be shown that the time x required to cover the distance is a random variable with probability density function

$$f(x) = \frac{1}{\sqrt{2\pi\beta x^3}} d e^{-(d-vx)^2/2\beta x} \tag{1}$$

where β is a diffusion constant. When the time x is fixed, the distance over which the particles travels is a random variable with the normal distribution:

$$g(d) = \frac{1}{\sqrt{2\pi\beta x}} e^{-(d-vx)^2/(2\beta x)} \tag{2}$$

On substituting $v = \dfrac{d}{\mu}$ and $\beta = \dfrac{d^2}{\lambda}$ into (1), we obtain the probability density function of inverse Gaussian random variable x with mean μ and variance μ^3/λ, (17:137), which is

$$IG(x;\mu,\lambda) = \sqrt{\frac{\lambda}{2\pi}}\, x^{-3/2}\, exp\left(-\frac{\lambda(x-\mu)^2}{2\mu^2 x}\right) \tag{3}$$

where $x > 0,\ \mu > 0,\ and\ \lambda > 0$. The density is unimodal and its shape is determined by the shape parameter $\phi = \lambda/\mu$. (11)

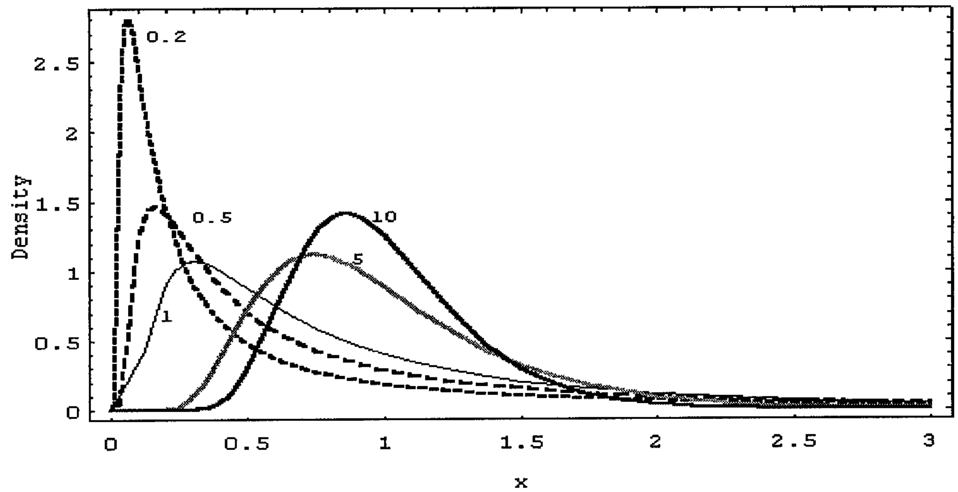


Figure 1 Pdf's of Inverse Gaussian Distribution with $\mu = 1$ for five values of λ.

The Cumulative Distribution Function F(x) of the inverse Gaussian distribution was given by Shuster (1968) in terms of the standard normal distribution, Φ.

$$F(x) = \Phi\left[\sqrt{\frac{\lambda}{x}}\left(\frac{x}{\mu} - 1\right)\right] + e^{2\cdot\frac{\lambda}{\mu}}\,\Phi\left[-\sqrt{\frac{\lambda}{x}}\left(\frac{x}{\mu} + 1\right)\right] \tag{4}$$

2.2.1 Estimation of Parameters. The most commonly used invarient estimation methods in modified goodness-of-fit tests are the maximum likelihood estimator (MLE) and the best linear unbiased estimator (BLUE). This thesis uses MLE, since "These estimators are computationally simple, complete, stochastically independent, and jointly sufficient; they are uniform minimum variance unbiased for μ and λ ".(25)(18) The MLEs of the mean μ and the scale parameter λ were obtained by Schrödinger in 1915.

$$\mu = \bar{x} = \frac{1}{n}\left(\sum_{i=1}^{n} x_i\right) \tag{5}$$

$$\lambda = \frac{n}{\left[\sum_{i=1}^{n}\left(\frac{1}{x_i} - \frac{1}{\bar{x}}\right)\right]} \tag{6}$$

2.2.2 Some Useful Properties. The inverse Gaussian distribution has some useful properties. We can order those properties as follows:

1. The family of the inverse Gaussian distributions is closed under the change of scale. For any number $c > 0$, cX is inverse Gaussian distributed with parameters $c\mu$ and $c\lambda$.

2. A linear combination $\sum c_i X_i$, $c_i > 0$, where $X_i \sim IG(\mu_i, \lambda_i)$, is inverse Gaussian distributed. That is, $\sum c_i X_i \sim IG\left(\sum c_i \mu_i, \xi \left(\sum c_i \mu_i\right)^2\right)$ if $\lambda_i / \left(\mu_i^2 c_i\right) = \xi$ for all i.

3. The family of the inverse Gaussian distributions was proven to be complete by Wasan in 1968.(37)

4. The density function (1) can be written as

$$f(x;\theta_1,\theta_2) = \sqrt{\frac{\theta_1}{2\pi}} \exp\left(\sqrt{\theta_2 \theta_1}\right) x^{-(3/2)} \exp\left[-\frac{1}{2}\left(\theta_1 x^{-1} + \theta_2 x\right)\right],$$

which represents an exponential family of distributions. More information can be supplied from Barndorff-Nielsen and Blaesild.(6:13)

Some properties of the inverse Gaussian distribution are parallel to those of normal distribution. These are:

- The sample mean $\bar{x}$ from an inverse Gaussian is inverse Gaussian.
- The sample mean and $\sum\left(\frac{1}{x_i} - \frac{1}{\bar{x}}\right)$ are independently distributed statistics.
- The term in the exponent of the distribution is (-1/2) times a chi-square variable.
- The uniformly most powerful unbiased test for the mean employs the student's t distribution.(30)

2.2.3 Application as a Lifetime Model. Since the first passage time of a Brownian motion has been proven to be distributed as inverse Gaussian, it is logical to use the inverse Gaussian distribution as a *lifetime model.* For instance, as stated by Chhikara and Folks in 1989, (6), it has been used to describe the interpurchase time for a consumable commodity; to model the distribution of strikes in the United Kingdom; to model the distribution of differences between prices at two different times at stock

market; to model wind speed and energy flux; to model active repair times(hours) for an airborne communication system. Many more examples appear in diverse fields such as reliability, cardiology, environmental studies, finance, employment services, etc.

In reliability studies the failure mechanism determines the choice of distribution. For example, for situations which aging or wearing-out processes occur, the life time can be represented with an increasing failure rate (IFR) distribution. (6:156) When early product failures or repairs are dominant in a lifetime distribution, its failure rate is expected to be nonmonotonic, first increasing and later decreasing. In such a situation, the inverse Gaussian distribution might provide a suitable choice for a life time model. Suppose F denotes the distribution function of failure time for a unit. The reliability $R(x)$ of the unit at time x is the probability of its having no failure before time x; thereby, $R(x) = 1 - F(x)$. For the inverse Gaussian distribution:

$$R(x) = \Phi\left(\sqrt{\frac{\lambda}{x}}\left(1 - \frac{x}{\mu}\right)\right) - e^{2\lambda/\mu}\Phi\left(\sqrt{\frac{\lambda}{x}}\left(1 + \frac{x}{\mu}\right)\right) \tag{7}$$

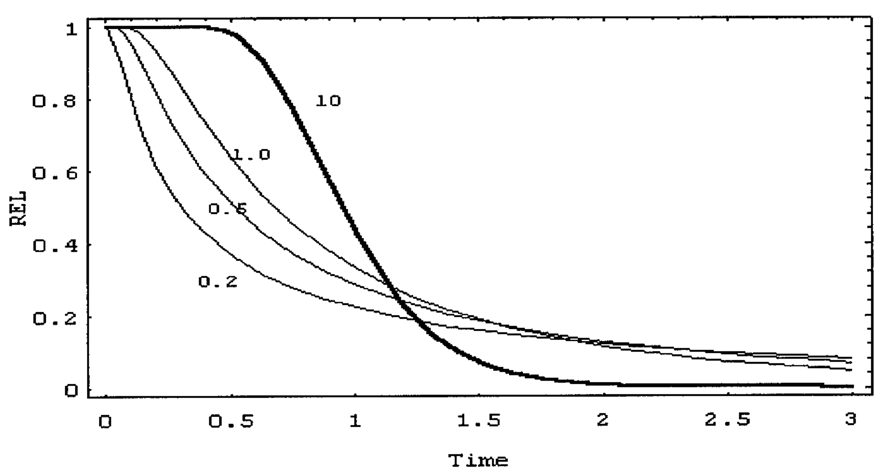


Figure 2 Reliability Function with $\mu = 1$ for four different values of λ.

The failure rate of a mechanism at time t is defined by the conditional probability that it fails during the infinitesimal time interval (t, $t + h$) given that no failure occurred before t. The failure rate $r(t)$ at time t is given by

$$r(t) = \frac{f(t)}{R(t)}, \qquad t > 0, \tag{8}$$

where $f(t)$ is the density function of the mechanism failure time. Thus the failure rate of inverse Gaussian is (6:151)

$$r(t) = \frac{\left(\lambda\, 2\pi t^3\right)^{1/2} \exp\left[-\lambda (t-\mu)^2 / 2\mu^2 t\right]}{\Phi\left(\sqrt{\frac{\lambda}{x}}\left(1-\frac{x}{\mu}\right)\right) - e^{2\lambda/\mu}\Phi\left(\sqrt{\frac{\lambda}{x}}\left(1+\frac{x}{\mu}\right)\right)} \tag{9}$$

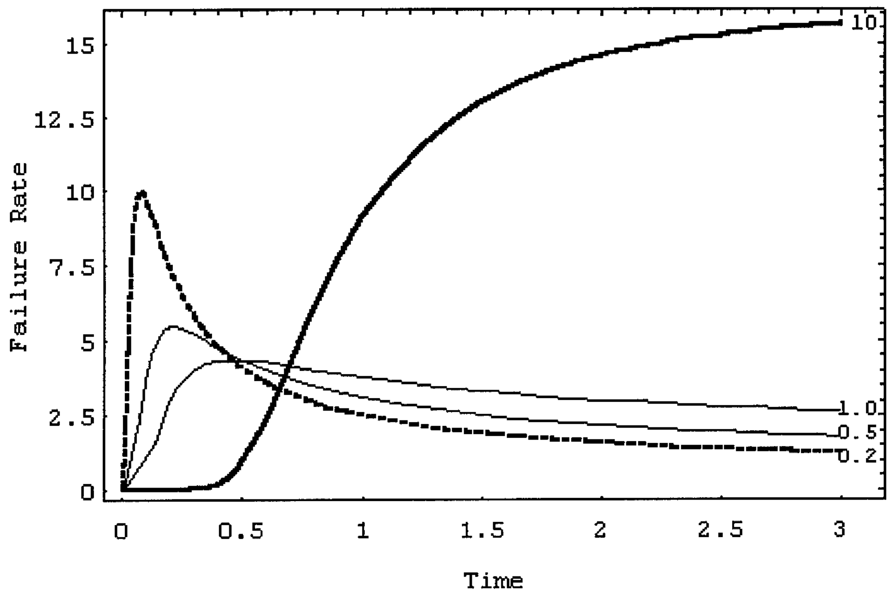


Figure 3 Inverse Gaussian Failure Rate with $\mu = 1$ for four values of λ.

Though the lognormal distribution, among others, is also applicable in such cases, there are certain advantages in choosing the inverse Gaussian over the lognormal. First, the inverse Gaussian addresses a wider class of lifetime distributions. The inverse Gaussian is almost an IFR distribution when its slightly skewed, and hence is also applicable to describe lifetime distribution which is not dominated by early failures. Secondly, the failure rate $r(t)$ is nonzero and constant as $t \to \infty$ for the inverse Gaussian, but $r(t)$ goes to zero as $t \to \infty$ for the lognormal. The nearly constant failure rate after a certain time period implies that after a time period, the occurrence of failure is purely random and is independent of past life; this is a property of the failure rate of an

exponential distribution which has been extensively used in reliability studies. On the other hand, vanishing failure rate implies that eventually almost no possibility of failure remains, which is hardly feasible in real life.(10)

2.3 Discussion of Goodness-of-fit Tests

Prior to using a probability model to represent the population underlying a particular set of data, it is important to test adequacy of model.(38:113) Goodness-of-fit tests measure the degree of agreement between the distribution of an observed data sample and a theoretical statistical distribution.(7:189) Goodness-of-tests can be applied either by using graphical methods or by using test statistics.

For years statisticians have attempted to find test statistics whose sampling distributions do not depend on certain parameter values or on the explicit form of the distribution of the population. Such tests are called non-parametric or distribution-free tests.(22:68) Two of the oldest and best known non-parametric tests for goodness-of-fit are the Chi-squared and the Kolmogorov-Smirnov tests.(7:189)

2.3.1 Chi-Squared Test. The Chi-squared test, introduced by Pearson in 1900, is the first goodness-of-fit test. This classical test is an almost universal goodness-of-fit test since it can be applied to discrete, continuous or mixed distributions, and with grouped or ungrouped data. Further, the model can be completely specified or the parameters can be estimated.(38:113) This test compares frequencies of the observed data with expected frequencies of the hypothesized distribution. The test is flexible enough to allow some parameters to be estimated from the observed data, but it has some limitations. For example, it is restricted to large sample sizes.(2:73)

The Chi-squared test procedure can be summarized as follows:

Suppose we have a random sample $X_1, X_2, ..., X_n$ with the distribution $F(x)$. The range of the data sample is partitioned arbitrarily into k cells. Let O_i be the observed number of X_j's in the i^{th} cell and let p_i be the portion of observations that would be in the

cell for the postulated distribution. Each O_i has a binomial distribution and, thus, $E_i = np_i$ is the expected value of O_i . Pearson reasoned that the difference between the observed and the expected cell frequencies , $O_i - E_i$, expresses lack of fit of the data to $F(x)$. He suggested the chi-squared test statistics as a function of this difference. That is,

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

The test has k-p-1 degrees of freedom, where p is the number of parameters estimated and the parameters are estimated by minimizing the χ^2 statistic. (33:64-65) If $\chi^2 > \chi^2_{k-p-1}$ (where χ^2_{k-p-1} is the critical test value), the test results in rejection. The test is approximate since the sample statistic is only asymptotically χ^2 distributed. It is shown by several authors that the chi-squared test has lower power than other applicable tests. Since statisticians may partition the data differently, test results may not be consistent.(38:113)

2.3.2 The Empirical Distribution Function Tests. EDF tests are the second class of goodness-of-fit tests. They compare an observed sample distribution function and an hypothesized theoretical distribution function. EDF test statistics are based on the empirical distribution function and in many cases are easily calculated and competitive in terms of power. The Kolmogorov-Smirnov, Anderson-Darling, Cramer-von Mises, Kupier, and Watson test statistics are all of the EDF type.(34:730)

The Kolmogorov-Smirnov (KS) test compares the cumulative distribution function (CDF) of the hypothesized distribution against the empirical distribution function (EDF) of the observed data sample. Although it is restricted to distributions which are fully specified, the test can be used with small or large samples. There can be no unknown parameters estimated from the sample.(7:357) Often, it is a more powerful test than the Chi-squared test for any sample size.(20:399)(22:76)

When parameter estimates must be made from the sample, the existing KS critical values are overly conservative and must be modified using Monte Carlo techniques.(3:357) The term *conservative* means that the critical values are too large so that the actual level of significance is smaller than the stated level of significance.(7:90)

The KS test statistic is the largest vertical distance between the completely specified hypothesized CDF and the observed EDF.(12:204) Kupier test statistic (V) is the sum of the largest vertical positive distance (D^+) and the largest negative distance (D^-).Thus, the test statistics are expressed as (33:101):

$$KS = \max(D^+, D^-) \tag{10}$$

$$V = D^+ + D^- \tag{11}$$

$$D^+ = \max(F_n(x) - F(x)) = \max(i/n - F(x_i))$$

$$D^- = \max(F(x) - F_n(x)) = \max(F(x_i) - (i-1)/n)$$

Another way to measure the discrepancy between the hypothesized CDF and the observed EDF is to use statistics of the Cramer-von Mises (CV) family, which are based on the squared integral of the difference between the EDF and the distribution tested. These statistics are generated from

$$Q = n\int_{-\infty}^{\infty}\left[\left(F_n(x) - F(x)\right)^2 \psi(x)\right] dF(x) \tag{12}$$

where $\psi(x)$ is the weight function. When $\psi(x) = 1$, the CV statistic is obtained. (34:731) The more practical computational formula for the CV statistic is:

$$CV = \frac{1}{12n} + \sum_{i=1}^{n}\left(F(x_i) - \frac{2i-1}{2n}\right)^2 \tag{13}$$

A modification of CV is the Watson (W) statistic defined by

$$W = n\int_{-\infty}^{\infty}\left\{F_n(x) - F(x) - \int_{-\infty}^{\infty}\left[F_n(x) - F(x)\right]dF(x)\right\}^2 dF(x).$$

The more practical computational formula for the W statistic is:

$$W = CV - n\left[\left(\sum_{i=1}^{n} F(x_i)/n\right) - 0.5\right]^2 \tag{14}$$

Another member of the Cramer-von Mises family is the Anderson-Darling (AD) statistic. When $\psi(x) = 1/\{F(x)(1-F(x))\}$ the Anderson-Darling statistic is obtained.(1:767) The test allows more flexibility in goodness-of-fit tests. In a more practical computational way, the AD statistic is:

$$AD^2 = -n - \frac{1}{n}\sum_{i=1}^{n}(2i-1)\left[\ln F(x_i) + \ln(1 - F(x_{n+1-i}))\right] \tag{15}$$

In 1948, a significant breakthrough was made by David and Johnson in goodness-of-fit. They found that if a distribution can be completely specified by a single parameter for location and a single parameter for scale, then goodness-of-fit tests based on the probability integral transformation are independent of the true parameter values when invarient estimators are used.(9:184)

Based on the studies of David and Johnson, critical value tables for the KS and related tests have been modified to allow their use in several cases where parameters are estimated from observed data. In a modified test, the form of the test statistic itself remains essentially the same, except that estimates are used in place of exact parameters. However, the critical values for the modified test are considerably different. The critical value tables are no longer the same for all distributions. Instead, they are different for each hypothesized distribution function. A modified test is still non-parametric since the level of significance is still independent of any untested assumptions regarding the distribution of the underlying population. In fact, the form of the hypothesized distribution is the hypothesis being tested.(7:357)

In the literature, there are numerous studies on modified goodness-of-fit tests, each using different estimation techniques, different test statistics, different methods in calculating critical values, and different postulated distributions. For instance, Lilliefors developed a modified KS test for the normal and exponential distributions; Ream

developed another set of modified tests for the normal distribution; Woodruff, Moore and Cortes developed a modified KS test for the three-parameter Weibull distribution; Bush modified the AD and CV tests to expand the goodness-of-fit tests for the Weibull distribution; Viviano modified the KS, AD, and CV tests for the Gamma distribution; and Yoder developed a modified KS, AD, and CV tests for the logistic distribution. The modified KS, AD, and CV tests have also been developed for the uniform, normal, Laplace, exponential, Cauchy, and Inverse Gaussian distributions. In 1980, Daniel prepared a bibliography on goodness-of-fit tests. The bibliography goes back to 1900 (when Pearson first introduced the χ^2 test) and covers all the major studies up to 1980.(8) The efficiencies of the tests and the asymptotic theories of the test statistics are also discussed.

Moreover, there exist three important resources in the literature on the goodness-of-fit. The first is the book entitled *Goodness-of-Fit Techniques* by Stephens and D'agostino.(33) The authors refer to numerous studies and present various kinds of goodness-of-fit tests, giving examples for different distributions. The second book is *Smooth Goodness-of-Fit Tests* by Rayner and Best.(27) The third resource, which is *Goodness-of-Fit Statistics for Discrete Multivariate Data* by Read and Cressie, deals with the multivariate data analysis.(28)

2.3.3 Conclusion. The Kolmogorov-Smirnov (KS), Anderson-Darling (AD), and Cramer-von Mises (CV) tests are non-parametric tests for goodness-of-fit which offer advantages over the older Chi-squared test. In their usual forms, the KS, AD, and CV tests are restricted to distributions which are fully specified. However, when location and scale parameters are replaced by invariant estimators, the three tests can be modified to produce valid critical values for a given distribution. The majority of goodness-of-fit studies intended to develop new techniques by modifying existing tests to increase their power.

2.4 The Monte Carlo Method

When a system under study is too complex to be satisfactorily defined by mathematical formulas, a solution can be obtained by a procedure called simulation which imitates the system for different values of controllable variables. GOFTs use Monte Carlo simulation to create data that mimics many different populations.

The Monte Carlo method is a branch of experimental mathematics involving experiments using random numbers. It has been used extensively in statistical analysis, operations research, nuclear physics, and several other fields where problems are not easily solved by theoretical mathematics alone.(13:2) A basic principle of the method involves the simulating of statistical experiments through computational techniques, and then analyzing numerical characteristics observed from these experiments.(4:ix)

In this thesis, the Monte Carlo approach was used to generate the critical values for the GOFTs.

The most important weakness of the Monte Carlo simulation is that it produces answers that are to some degree uncertain since they are inferred from raw observational data consisting of random numbers. Porter reports the opinion of Hammersley and Handscomb on this weakness:

> Whenever one is inferring general laws on the basis of particular observations associated with them, the conclusions are uncertain in as much as the particular observations are only a more or less representative sample from the totality of all observations which might have been made. Good experimentation tries to ensure that the sample shall be more rather than less representative...[Monte Carlo answers] can nevertheless serve a useful purpose if we can manage to make the uncertainty fairly negligible, that is to say to make it unlikely that the answers are wrong by very much.(26:4-3)

One way to "make the uncertainty fairly negligible" is to base the Monte Carlo study on a very large number of observations. This thesis uses 50,000 repetitions in performing each Monte Carlo analysis.

2.5 Random Deviate Generation

There are several techniques for generating random numbers. Relevant techniques are discussed in the following sections.

2.5.1 Inverse Transform Technique. Occasionally it is possible to generate variates, x, from a distribution of interest by a simple application of the inverse probability integral transformation. If the cumulative distribution function, F, has a closed form expression for its inverse, F^{-1}, then it is often efficient to let $x = F^{-1}(u)$, where u is a variate from an acceptable uniform (0,1) generator.(23) Not surprisingly, " most random number generators are designed to generate random numbers which are uniformly distributed on the interval (0,1)". (3:293)

However, one disadvantage of this method is that there may not be a closed form formula for the CDF as in the normal and gamma distributions. For some distributions also, this method may not be the fastest method.(19:472)

2.5.2 Transformations with Multiple Roots. It is sometimes possible to produce a transformation to a variable for which a random number generator already exists. For example, Box and Muller have shown how normal variates can be produced from uniform variates using a direct transformation.

A known relationship may be of the form

$$v = g(x), \tag{16}$$

and a value of x is sought for each value of v that is generated. When a single valued inverse does not exist, more than one value of x satisfies. (16)(23)

The cumulative distribution function of inverse Gaussian distribution is expressed in terms of cumulatives of the standard normal and is not easily inverted. Michael, Schucany, and Haas calculated inverse Gaussian deviates using transformations with multiple roots as follows:

$$V = g(X) = \frac{\lambda\,(X-\mu)^2}{\mu^2 X} \approx \chi^2_{(1)} \tag{17}$$

For each chi-square, v_0, Equation (2) must be solved for x to obtain a corresponding observation from the inverse Gaussian distribution. For any $v_0 > 0$, there are exactly two roots of the associated quadratic equation which can expressed as

$$x_1 = \mu + \frac{\mu^2 v_0}{2\lambda} - \frac{\mu}{2\lambda}\sqrt{4\mu\lambda v_0 + \mu^2 v_0^2}$$

and

$$x_2 = \frac{\mu^2}{x_1} \tag{18}$$

The difficulty in generating observations with the desired distribution now lies in choosing between the two roots. The writers computed the probabilities for choosing each root. The x_1 should be chosen with probability

$$p_1(v_0) = \frac{\mu}{\mu + x_1} \tag{19}$$

Thus, for each random observation from a chi-square distribution with one degree of freedom, v_0, the smaller root is calculated. Then, a Bernoulli trial is performed with $p_1(v_0) = \mu / (\mu + x_1)$. If the trial results in a "success", x_1 is chosen; otherwise, the larger root, $x_2 = \mu^2 / x_1$, is chosen.

2.6 Bootstrap Method and Plotting Positions Technique

The plotting positions technique is one popular method for determining percentiles of the distribution underlying a set of n ordered sample values.(15:317) In GOFTs, it is the most common method for deriving significance levels of critical values. The approach depends on the bootstrap methods which were pioneered by Efron for estimating confidence intervals. These methods can be summarized as follows:

Let x_0 be the real random sample from the real population; $t(x_0)$ is the value of the test statistic for the real sample. A hypothesis test consists of calculating how unusual $t(x_0)$ is relative to the sampling distribution of $t(x)$. That is, significance of the test statistic ideally is $prob(t(x) \geq t(x_0))$ and the rule for rejecting the null hypothesis is:

$$\text{Reject if } prob(t(x) \geq t(x_0)) \leq \alpha$$

The problem of assessing a significance level thus reduces to estimating a sampling distribution of the test statistic under the null hypothesis, (i.e. the probability distribution of $t(x)$ ...). The sampling distribution is estimated by drawing simulated random samples from the null hypothesis population. The significance level is essentially the proportion of simulated samples for which the value of the test statistic was at least as large as for the original sample.(24:64)

The plotting positions technique involves using a large number of discrete values of the ordered test statistics and locating them on a continuous spectrum by representing the spaces between them as piecewise linear functions. This makes it possible to linearly interpolate the desired percentiles between discrete values of the test statistics, thus obtaining more accurate critical values.(29:1615)

Each plotting position, which is a cumulative probability, corresponds to an ordered value. The distribution function of these n ordered observations is a step function which jumps from $(i\text{-}1)/n$ to i/n at the i^{th} order statistic of the sample. However, if the plotting position i/n is used, the largest value cannot be plotted, while if $(i\text{-}1)/n$ is used, the smallest value cannot be plotted.(14:1615)

Numerous alternative plotting positions have been proposed, most of which have been summarized by Harter(14). The mean plotting position is computed by $(i\text{-}0.5)/n$ where i is the rank of the order statistic and n is the sample size. The median rank plotting position is computed by $(i\text{-}0.3)/(n\text{-}0.4)$. Another plotting position is the mode $(i\text{-}1)/(n\text{-}1)$ p. Harter also conducted the Monte Carlo analysis of plotting positions for several distributions and concluded that "... the optimum choice of plotting positions depends not only on the purpose of the investigation, but also (definitely) on the distribution of the variable under consideration".(15:342) He noted that "As samples increase above a sample size of 20, the differences among the positions determined by any method of

estimation decrease to the point where they are practically unimportant. ...in practice, plotting positions differ little compared with the randomness of the data".(14:1621-1622)

III. Methodology

3.1 Overview

This chapter describes the specific procedures used to accomplish the research objectives. The discussion will cover the Monte Carlo method in the computation of critical values of the modified goodness-of-fit test (GOFT) for inverse Gaussian distribution with unknown parameters. It will also address calculation of the power tables.

This thesis examines the Kolmogorov-Smirnov (KS), Anderson-Darling (AD), Cramer von Misses (CV), Kupier (V), and Watson (W) GOFTs. The critical value tables were acquired for each modified GOFT. Then the power study was done using different alternate distributions. Finally, sequential GOFTs were applied using six different combinations of tests KS-AD, KS-CV, KS-W, AD-CV, AD-V, AD-W. Results of the power analyses are summarized in tables.

All computer programs for critical value computations and power studies were written in FORTRAN 77. IMSL/STAT/LIBRARY were widely used. The programs were run on Sparc Station II machines.

3.2 Computation of Critical Value Tables

The Monte Carlo procedure has been modified to generate critical values. A FORTRAN program was written for this purpose and is contained in Appendix A. The flow chart of the program which generates critical values for five different GOFTs is shown on the Figure 4. The generation process consists of the following steps:

1. *Step 1: Generate Random variates.* Random samples from the inverse Gaussian distribution are generated. While library subroutines exist for many common probability distributions, no such routine exists for the inverse Gaussian distribution.

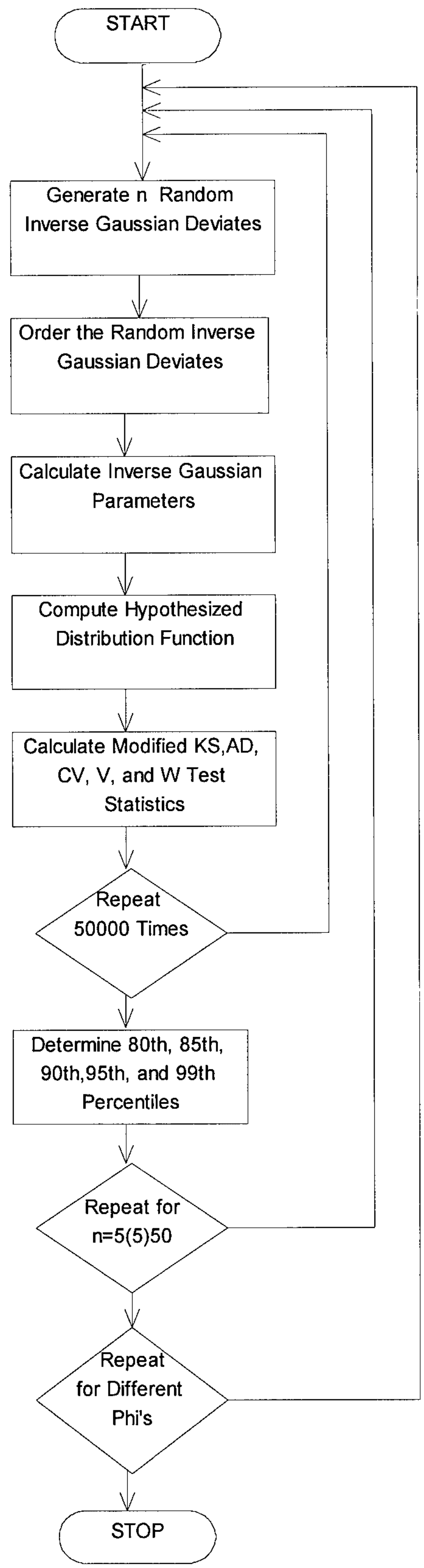


Figure 4
Flow Chart of the
Critical Value
Generation

Therefore, a computer subroutine was written to generate random inverse Gaussian deviates for a given sample size *n*.

The transformations with multiple roots technique which had been introduced by Michael, Schucany, and Haas was used to generate the deviates. Their algorithm was adapted to the critical value generation program. A typical FORTRAN subroutine for generating the observation might contain code similar to the following:

```
C     V HAS A CHI-SQUARE(1) DISTRIBUTION
      W = MU*V
      C = MU/(2.0*LAMBDA)
      X1 = MU+C*(W-SQRT(W*(4.0*LAMBDA+W)))
      P1 = MU/(MU+X1)
C     Y HAS A UNIFORM(0,1) DISTRIBUTION
      IF (Y .GE. P1) X = MU*MU/X1
C     THE DESIRED VARIATE IS RETURNED IN X
```

2. *Step 2 : Order the data.* The n random deviates $x_1, x_2, \ldots, x_n$ were converted to order statistics $x_{(1)}, x_{(2)}, \ldots, x_{(n)}$ by arranging them in ascending order using the IMSL subroutine SVRGN.
3. *Step 3 : Estimate the Parameter.* The ordered inverse Gaussian deviates were then used to find the maximum likelihood estimators (MLEs) of mean, μ and scale parameter, λ.
4. *Step 4 : Compute the hypothesized CDF.* The estimated parameters and n ordered deviates were used to compute the hypothesized cumulative distribution function (CDF) P_i for $i = 1, 2, \ldots, n$.

5. *Step 5 : Calculate the test statistics.* The modified KS, AD, CV, V, and W statistics were calculated based on the hypothesized CDF and MLEs.

6. *Step 6 : Generate statistics.* The steps 1 through 5 were repeated 50,000 times to generate 50,000 independent KS, AD, CV, V, W test statistics.

7. *Step 7 : Find the critical values.* For each of the five tests, the 50,000 statistics were ordered as in *step 2* using the median ranks plotting position technique. The 80th, 85th, 90th, 95th, and 99th percentiles of the distributions of each test statistic were calculated by linear interpolation. These percentiles correspond, respectively, to the 0.20, 0.15, 0.10, 0.05, and 0.01 levels of significance and served as critical values for the modified KS, AD, CV, V, and W GOFTs.

8. *Step 8 : Repeat for sample sizes.* To evaluate the effect of sample size on the critical values, *Step 1* through *Step 7* were repeated for each sample size 5 through 50 in increments of five.

9. *Step 9 : Repeat for shape parameters. Step 1* through *Step 8* were repeated for specified shape parameters 0.001, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0, 100.0, and 1000.0.

3.3 Power Comparison

In this part of the research each modified test was compared against others to determine the best test for detecting a false inverse Gaussian distribution hypothesis. The power of a statistical test is the probability of correctly rejecting a false null hypothesis. The null hypothesis that a set of sample deviates follows a inverse Gaussian distribution with a specified shape parameter was tested against the alternative hypothesis that the sample deviates follow some other distribution:

H_0 : Sample deviates follow a inverse Gaussian CDF with shape ϕ

H_a : They follow some other distribution

The power study was conducted for $\phi = 1.0$ and $\phi = 5.0$ in the null hypothesis.

Random deviates from different distributions of size n were generated using IMSL subroutines RNGAM, RNWIB, RNLNL, RNEXP, and RNUN. The alternate distributions used were the gamma with shape = 0.8 and scale = 2.0, the Weibull with shape = 1.15 and scale = 0.75, the lognormal with mean = e and variance = $e^3 - e^2$, the exponential, and the uniform. 50,000 random samples of size n were generated for each of the alternate distributions.

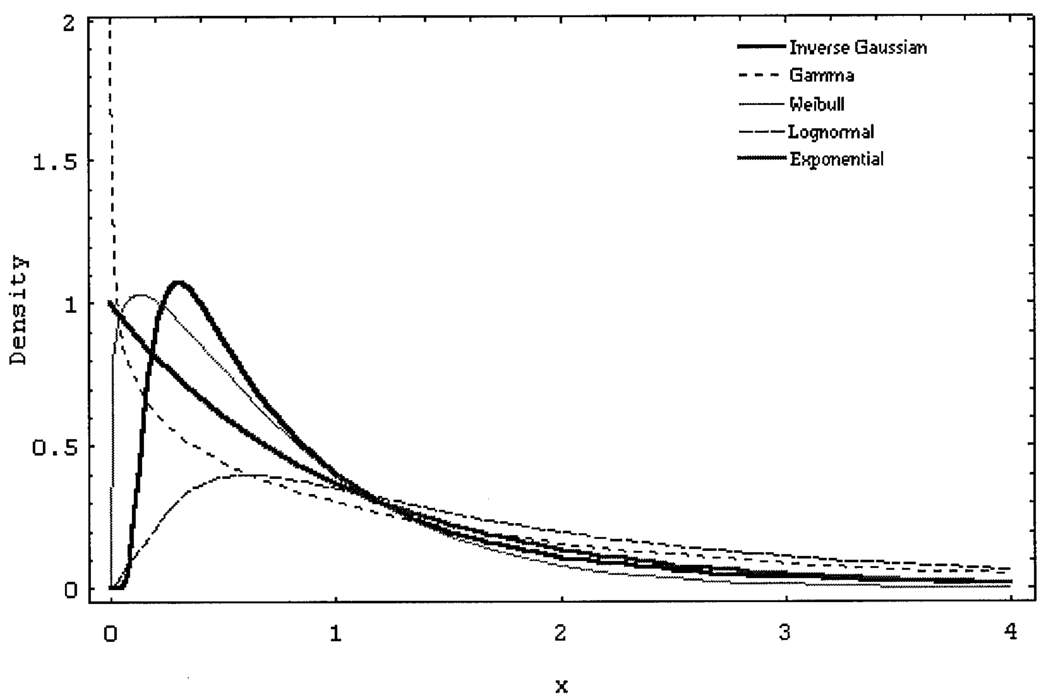


Figure 5 PDFs of the inverse Gaussian with λ=1 and alternate distributions

The KS, AD, CV, V, and W GOFT statistics were then calculated under the null hypothesis that the random deviates follow the inverse Gaussian distribution with specified shape $\phi = 1.0$ or $\phi = 5.0$. The calculated KS, AD, CV, V, and W GOFT statistics were compared to the corresponding critical value.

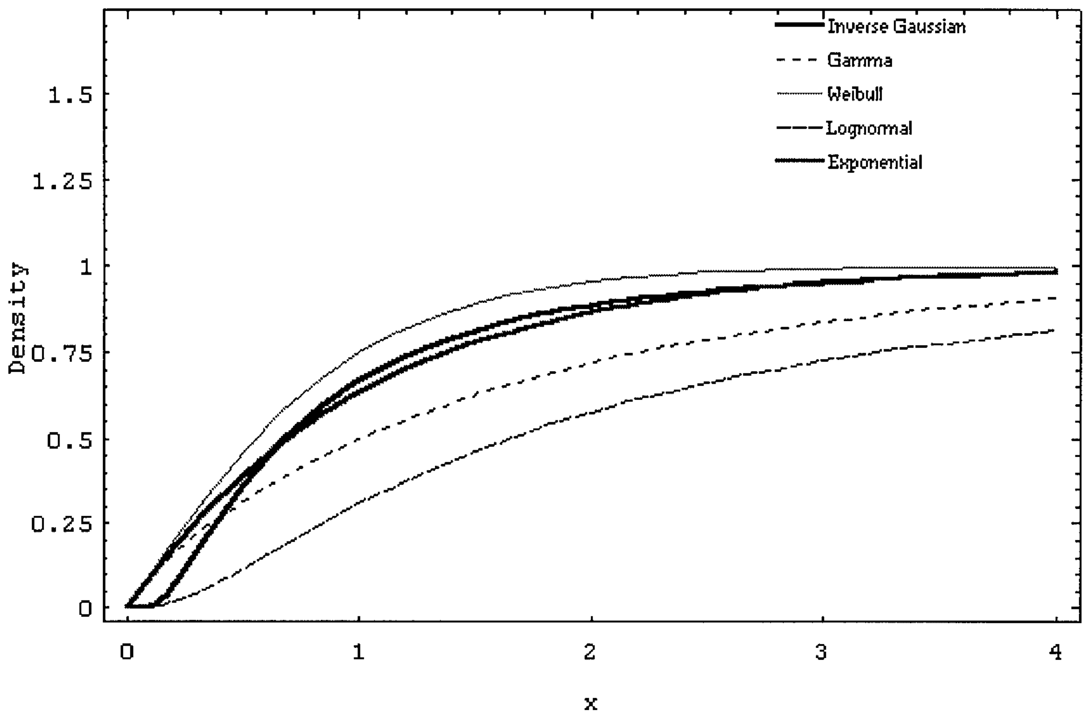


Figure 6 CDFs of the inverse Gaussian with λ=1 and alternate distributions

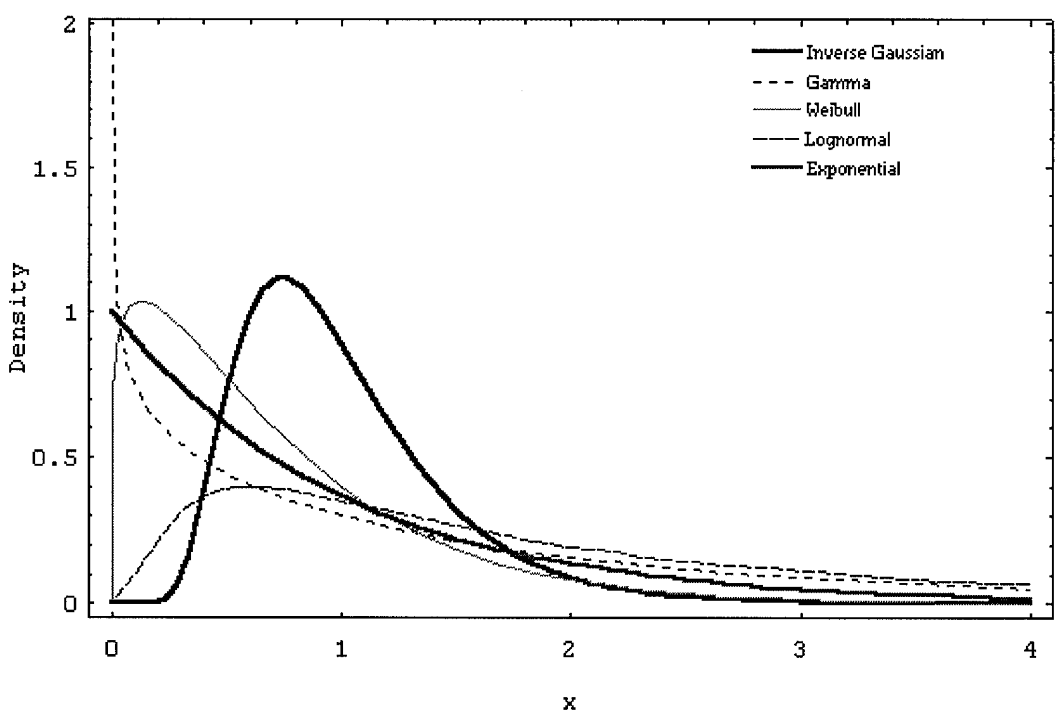


Figure 7 PDFs of the inverse Gaussian with λ=5 and alternate distributions

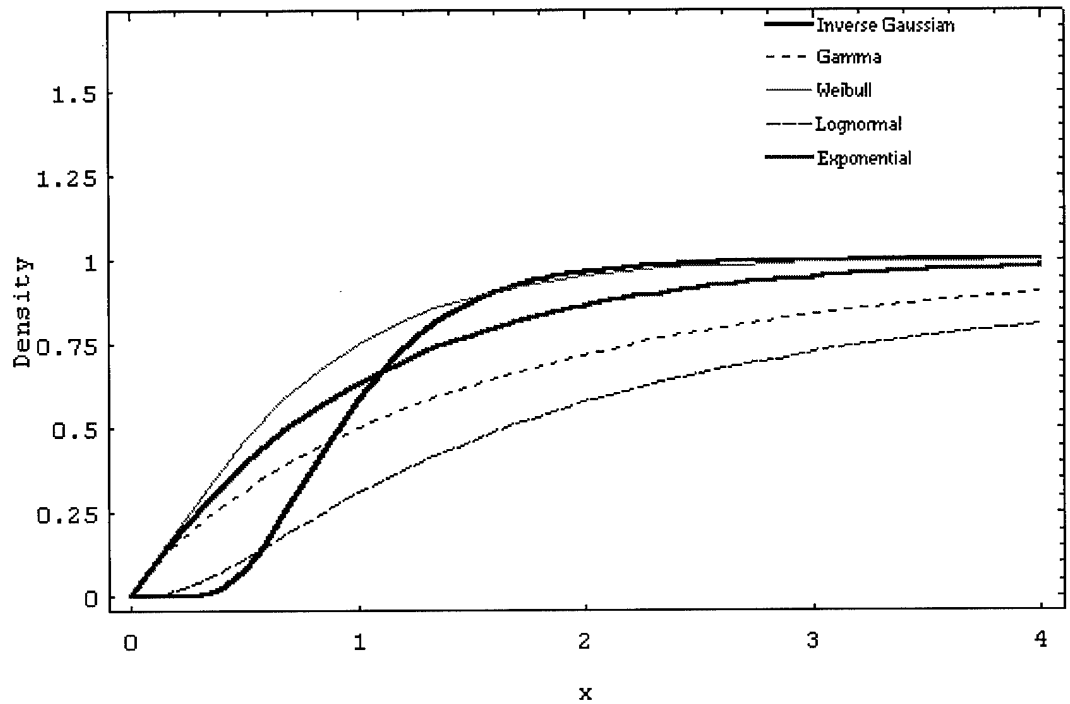
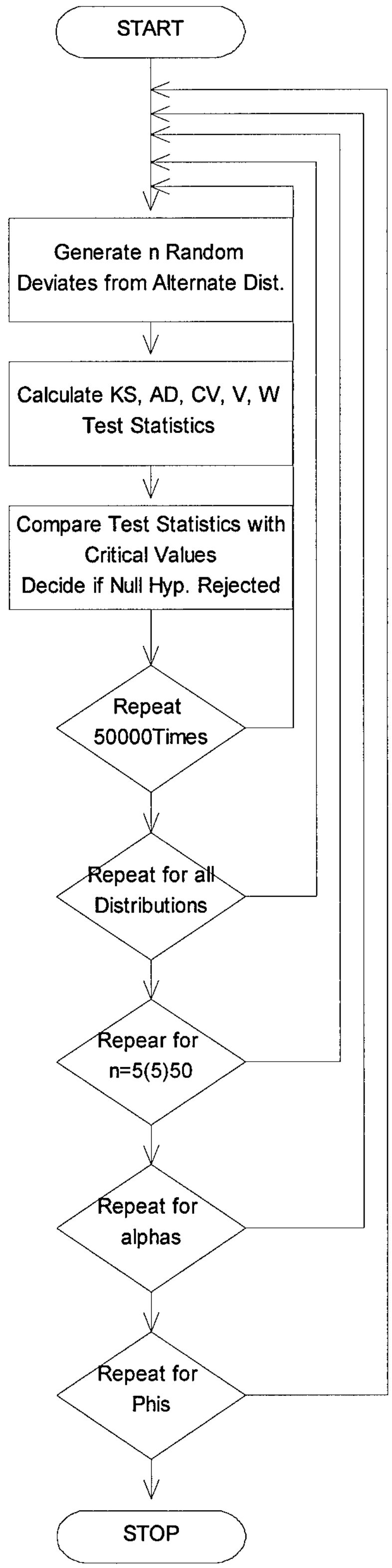


Figure 8 CDFs of the inverse Gaussian with λ=5 and alternate distributions

The procedure for comparing test statistics against critical values was repeated 50,000 times for each distribution and test. The number of times each statistic exceeded the respective critical value was counted for each sample size. The total number of rejections of the null hypothesis was divided by total number of tests performed (50,000). For a random sample generated from the hypothesized inverse Gaussian distribution , this calculated quotient represents the rate of erroneous rejection of a true null hypothesis. It is expected to be approximately the significance level α, which is the probability of committing a Type I error. In those cases involving random samples generated from an alternative distribution, the quotient represents the power of the test, since it approximates the probability of correctly rejecting a false null hypothesis.(7:78)

A FORTRAN program, written to accomplish the power study, is contained in Appendix B. A flow chart of the program is shown on Figure 9.

Figure 9
Flow Chart of
Power Study



The power study consists of the following steps:

1. *Step 1 :* Use IMSL subroutines or subroutine IGDEV to generate n random deviates from a selected distribution.
2. *Step 2 :* Assume the null hypothesis that this set of n deviates follows the inverse Gaussian distribution of given shape $\phi = 1.0$. Perform steps 2 through 5 of the critical value generation process to compute the values of the modified KS, AD, CV, V, and W test statistics.
3. *Step 3 :* For a given significance level α, compare the test statistic value against the appropriate critical value found in the critical value generation program. If the test statistic value exceeds the critical value, H_0 is rejected.
4. *Step 4 :* Repeat steps 1-3 50,000 times, each time using a different random seed to number generate the deviates.
5. *Step 5 :* Count the number of times H_0 was rejected and divide by 50,000 to obtain the power.
6. *Step 6 :* Repeat *Steps 1* through *5* for each alternative distribution.
7. *Step 7 :* Repeat *Steps 1* through *6* for sample sizes $n = 5$ through 50 in increments of 5.
8. *Step 8 :* Repeat *Steps 1* through *7* for significance level $\alpha = 0.01$ through 0.20 in increments of 0.05.
9. *Step 9 :* Repeat *Steps 1* through *8* for the hypothesized inverse Gaussian distribution with $\phi = 1.0$ and $\phi = 5.0$

3.4 Sequential Tests

In sequential tests six different combinations of pairs of standard tests KS-AD, KS-CV, KS-W, AD-CV, AD-V, AD-W were used. The combinations of pairs of similar tests were not chosen in this study, such as KS-V, since these combinations would not

increase the power. Test procedure for sequential power tests is exactly the same as that of the independent GOFTs. H_0 : *Sample deviates follow an inverse Gaussian CDF with shape* ϕ , H_a : They follow some other distribution.

The tests were conducted for the same ϕ values and against the same alternative distributions as in the basic power study. The difference is that two different test statistics are compared to the critical values at a specific significance level α. The number of times H_0 was rejected in at least one of the two test statistics was counted. The ratio of the total number of rejections divided by

the total number of tests performed (50,000) approximately represents the significance level α, which is the probability of committing a Type I error if the data samples come from the inverse Gaussian distribution. In those cases involving random samples generated from an alternative distribution, the same quotient represents the power of the test, since it approximates the probability of correctly rejecting a false null hypothesis. A flow chart of the program is shown on Figure 10.

3.5 Regression Study

In this stage of research a functional relationship between the critical values and the shape parameter ϕ and sample size n is developed. This relationship can then be used to interpolate critical values corresponding to parameters and sample sizes not found in the generated tables.

To accomplish this stage, different variations of the shape parameter (e.g. ϕ^2,$1/\phi$, $1/\phi^2$) and sample size n (e.g. n^2,$1/n$) were used to find the linear regression relationship which minimizes the sum of the squares of the deviations of the actual data points from the regression hyperplane of "best" fit. The correlation coefficient was also found.

Critical values from each GOFT were lined up according to their shape parameter ϕ and sample size. Since there were very many critical values from five different test statistics, a FORTRAN program was written to arrange them in the proper order. Then

the relationships between critical values, sample size, and shape parameter ϕ for each test statistic were found by processing the ordered data in *Statistix* using the "stepwise linear regression" option. In this step, a PC with the INTEL 80486 DX/2 microprocessor was used.

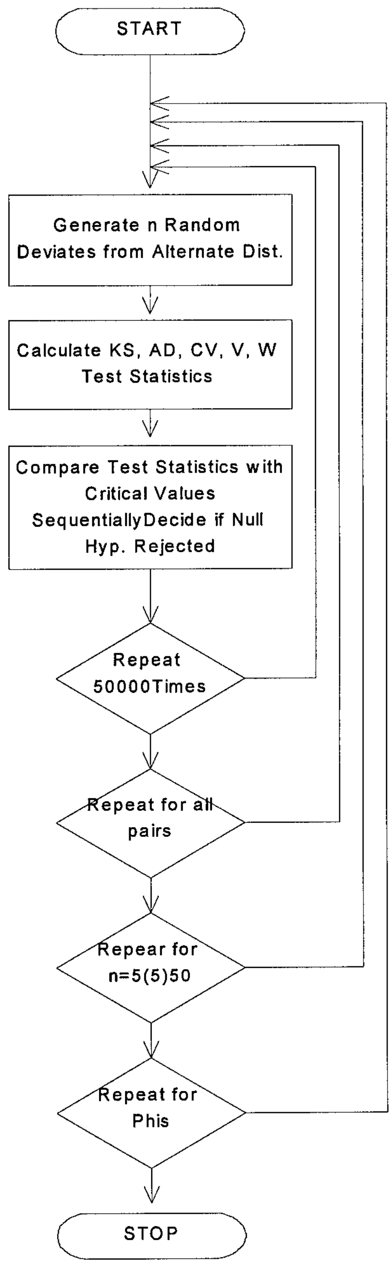


Figure 10 Flow Chart of Power study For Sequential Tests

3.6 Summary

The research for this thesis was performed by applying the Monte Carlo method using 50,000 repetitions to generate critical value tables, a standard and sequential power study.

First, random inverse Gaussian deviates were generated by using the transformations with multiple roots technique, and 50,000 test statistics were computed for each test. The median ranks plotting positions technique was used to find the significance levels of the critical values. Then the powers of each test were computed independently of others using five different alternative distributions. The same power study was done sequentially for six different pairs of the modified GOFTs (KS-AD, KS-CV, KS-W, AD-CV, AD-V, AD-W).

The results of this research are presented in the next chapter.

IV. Results

4.1 Overview

In response to the research objectives listed in Chapter I, tables of critical values for the KS, AD, CV, V, and W tests, tables of power study and tables of sequential power study are presented in Appendix E, Appendix F, and Appendix G, respectively. Regression equations for critical values are presented in this chapter. The use of the tables is explained.

4.2 Critical Value Tables

Tables E.1 through E.72 in Appendix E contain critical values for the modified Kolmogorov-Smirnov (KS), Anderson-Darling (AD), Cramer-von Mises (CV), Kupier (V), and Watson (W) test statistics. Critical values are presented for each level of significance $\alpha = 0.20, 0.15, 0.10, 0.05$, and 0.01; sample sizes $n = 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90$, and 100; and inverse Gaussian shape parameters 0.001, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0,10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0, 50.0, 60.0, 70.0, 80.0, 100, and 1000.

The critical values contained in the tables in Appendix E can be used to test whether a random data sample of size $n = 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90$, and 100 follows an inverse Gaussian distribution. There are five basic steps in checking whether a random sample of observed data follows an inverse Gaussian density:

1. Calculate MLEs of inverse Gaussian parameters μ and λ using equations (5) and (6).
2. Use MLEs and the n ordered sample observations to compute the hypothesized inverse Gaussian CDF from equation (4).
3. Select the type of the test to be performed. Use equation (10) for the modified KS test, equation (11) for the modified V test, equation (13) for the modified

CM test, equation (14) for the modified W test, and equation (15) for the modified AD test. Subroutine TESTAT in Appendix A can be used to compute test statistics for all five tests.

4. Identify the critical value from the critical value tables in Appendix E, based on the test type, significance level, sample size, and the shape parameter ϕ.
5. If the test statistic does not exceed the critical value, conclude that there is insufficient evidence to reject the null hypothesis H_0: The sample observations follow an inverse Gaussian distribution. Reject the null hypothesis if the value of the test statistic exceeds the critical value.

The tables divulge that the critical values for all the test statistics increase as the sample size or significance level increases.

4.3 Regression equations

A strong regression relationship between critical values and independent variables (sample size, shape parameters, and significance levels) was revealed for all five tests.

The regression model (20) provides a good fit for each fixed value of α for the Kolmogorov-Smirnov (KS) critical values:

$$KS_{crit} = \beta_1 \frac{1}{n} + \beta_2 \frac{1}{\sqrt{n}} + \beta_3 \frac{1}{\phi} + \beta_4 \frac{1}{\sqrt{\phi}} + \varepsilon \tag{20}$$

where β_i is the regression coefficient for i =1, 2, 3, 4. The fit of this model was compared with the fit of models that included an intercept term, interaction terms, and other terms involving functional combinations of n and ϕ, such as $1/n^3$ and $1/\phi^2$. The marginal contributions of these terms did not warrant their inclusion in (20). There are no standard regression models which provide a good fit for each fixed value of α for the Anderson-Darling (AD), the Cramer-von Mises (CV), Kupier (V),and Watson (W) critical values. Regression equations below were obtained for 0.20, 0.15, 0.10, 0.05, and 0.01 significance levels, respectively.

KS critical values for each significance level are as follows:

For $\alpha = 0.20$ Adjusted $R^2 = 0.9965$

$$KS_{Crit} = -0.41290\frac{1}{n} + 0.76266\frac{1}{\sqrt{n}} - 0.01179\frac{1}{\phi} + 0.15318\frac{1}{\sqrt{\phi}} \tag{21}$$

For $\alpha = 0.15$ Adjusted $R^2 = 0.9967$

$$KS_{Crit} = -0.41169\frac{1}{n} + 0.79779\frac{1}{\sqrt{n}} - 0.01213\frac{1}{\phi} + 0.15668\frac{1}{\sqrt{\phi}} \tag{22}$$

For $\alpha = 0.10$ Adjusted $R^2 = 0.9971$

$$KS_{Crit} = -0.42677\frac{1}{n} + 0.84756\frac{1}{\sqrt{n}} - 0.01254\frac{1}{\phi} + 0.16071\frac{1}{\sqrt{\phi}} \tag{23}$$

For $\alpha = 0.05$ Adjusted $R^2 = 0.9978$

$$KS_{Crit} = -0.46614\frac{1}{n} + 0.92927\frac{1}{\sqrt{n}} - 0.01308\frac{1}{\phi} + 0.16628\frac{1}{\sqrt{\phi}} \tag{24}$$

For $\alpha = 0.01$ Adjusted $R^2 = 0.9985$

$$KS_{Crit} = -0.53691\frac{1}{n} + 1.08892\frac{1}{\sqrt{n}} - 0.01413\frac{1}{\phi} + 0.17676\frac{1}{\sqrt{\phi}} \tag{25}$$

The generalized regression model (26) which includes shape parameter ϕ, significance level α, and sample size n as independent regression variables provides a good fit for Kolmogorov-Smirnov (KS) critical values:

$$KS_{Crit} = \beta_1\frac{1}{\phi} + \beta_2\frac{1}{\sqrt{\alpha}} + \beta_3\frac{1}{\sqrt{n}} + \beta_4\frac{1}{\sqrt{\phi}} \tag{26}$$

Adjusted $R^2 = 0.9953$

$$KS_{Crit} = -0.01225\frac{1}{\phi} + 0.00718\frac{1}{\sqrt{\alpha}} + 0.62550\frac{1}{\sqrt{n}} + 0.15755\frac{1}{\sqrt{\phi}} \tag{27}$$

AD regression equations for each significance level are as follows:

For $\alpha = 0.20$ Adjusted $R^2 = 0.9823$

$$AD_{Crit} = -2.6449\frac{1}{\sqrt{n}} + 0.0353\sqrt{\phi} - 0.0032\frac{1}{\phi^2} + 4.3728\frac{1}{\sqrt{n\phi}} + 0.6495\sqrt{n/p} \tag{28}$$

For $\alpha = 0.15$ Adjusted $R^2 = 0.9814$

$$AD_{Crit} = -3.7838\,\frac{1}{n} + 5.24\times10^{-5}\,n^2 - 0.0029\,\frac{1}{\phi^2} + 3.6026\,\frac{1}{\sqrt{n\phi}} + 0.6216\,\sqrt{n/p} \tag{29}$$

For $\alpha = 0.10$ Adjusted $R^2 = 0.9821$

$$AD_{Crit} = 7.53\times10^{-5}\,n^2 - 1.4841\,\frac{1}{\sqrt{n}} - 0.0031\,\frac{1}{\phi^2} + 4.18831\,\frac{1}{\sqrt{n\phi}} + 0.6544\,\sqrt{n/p} \tag{30}$$

For $\alpha = 0.05$ Adjusted $R^2 = 0.9820$

$$AD_{Crit} = 8.96\times10^{-5}\,n^2 - 1.2823\,\frac{1}{\sqrt{n}} - 0.0034\,\frac{1}{\phi^2} + 4.7248\,\frac{1}{\sqrt{n\phi}} + 0.6903\,\sqrt{n/p} \tag{31}$$

For $\alpha = 0.01$ Adjusted $R^2 = 0.9823$

$$AD_{Crit} = 1.4\times10^{-4}\,n^2 - 1.0355\,\frac{1}{\phi} - 0.0132\,\frac{1}{\phi^2} + 3.39487\,\frac{1}{\sqrt{n\phi}} + 0.6645\,\sqrt{n/p} \tag{32}$$

CV regression equations for each significance level are as follows :

For $\alpha = 0.20$ Adjusted $R^2 = 0.9815$

$$CV_{Crit} = 0.2269\,\frac{1}{\phi} - 0.0025\,\frac{1}{\phi^2} + 0.6142\,\frac{1}{\sqrt{\phi}} + 6.31\times10^{-5}\,\frac{n^2}{\sqrt{\phi}} - 0.8366\,\frac{1}{\sqrt{n\phi}} \tag{33}$$

For $\alpha = 0.15$ Adjusted $R^2 = 0.9812$

$$CV_{Crit} = -0.3059\,\frac{1}{\sqrt{n}} - 6.02\times10^{-4}\,\frac{1}{\phi^2} + 0.9501\,\frac{1}{\sqrt{\phi}} + 6.38\times10^{-5}\,\frac{n^2}{\sqrt{\phi}} - 0.8091\,\frac{1}{\sqrt{n\phi}} \tag{34}$$

For $\alpha = 0.10$ Adjusted $R^2 = 0.9808$

$$CV_{Crit} = -0.8441\,\frac{1}{n} - 6.03\times10^{-4}\,\frac{1}{\phi^2} + 0.9868\,\frac{1}{\sqrt{\phi}} + 6.52\times10^{-5}\,\frac{n^2}{\sqrt{\phi}} - 0.8073\,\frac{1}{\sqrt{n\phi}} \tag{35}$$

For $\alpha = 0.05$ Adjusted $R^2 = 0.9795$

$$CV_{Crit} = 0.0056\,\sqrt{n} - 6.31\times10^{-4}\,\frac{1}{\phi^2} + 1.0178\,\frac{1}{\sqrt{\phi}} + 6.54\times10^{-5}\,\frac{n^2}{\sqrt{\phi}} - 0.9361\,\frac{1}{\sqrt{n\phi}} \tag{36}$$

For $\alpha = 0.01$ Adjusted $R^2 = 0.9790$

$$CV_{Crit} = 0.0121\,\sqrt{n} - 7.85\times10^{-4}\,\frac{1}{\phi^2} + 1.2102\,\frac{1}{\sqrt{\phi}} + 6.71\times10^{-5}\,\frac{n^2}{\sqrt{\phi}} - 1.0208\,\frac{1}{\sqrt{n\phi}} \tag{37}$$

V regression equations for each significance level are as follows:

For $\alpha = 0.20$ Adjusted $R^2 = 0.9934$

$$V_{Crit} = 0.0035\sqrt{n} - 0.8946\frac{1}{n} + 1.2638\frac{1}{\sqrt{n}} - 0.0221\frac{1}{\phi} + 0.2907\frac{1}{\sqrt{\phi}} \tag{38}$$

For $\alpha = 0.15$ Adjusted $R^2 = 0.9942$

$$V_{Crit} = 0.0032\sqrt{n} - 1.0125\frac{1}{n} + 1.3625\frac{1}{\sqrt{n}} - 0.0230\frac{1}{\phi} + 0.2991\frac{1}{\sqrt{\phi}} \tag{39}$$

For $\alpha = 0.10$ Adjusted $R^2 = 0.9951$

$$V_{Crit} = 0.0028\sqrt{n} - 1.1710\frac{1}{n} + 1.4950\frac{1}{\sqrt{n}} - 0.0240\frac{1}{\phi} + 0.3092\frac{1}{\sqrt{\phi}} \tag{40}$$

For $\alpha = 0.05$ Adjusted $R^2 = 0.9964$

$$V_{Crit} = -1.7012\frac{1}{n} + 1.83274\frac{1}{\sqrt{n}} - 0.0257\frac{1}{\phi} + 0.3276\frac{1}{\sqrt{\phi}} \tag{41}$$

For $\alpha = 0.01$ Adjusted $R^2 = 0.9980$

$$V_{Crit} = -1.9943\frac{1}{n} + 2.1675\frac{1}{\sqrt{n}} - 0.02809\frac{1}{\phi} + 0.3516\frac{1}{\sqrt{\phi}} \tag{42}$$

The generalized regression model (43) which includes shape parameter ϕ, significance level α, and sample size n as independent regression variables provides a good fit for Kupier (V) critical values generated:

$$V_{crit} = \beta_1\frac{1}{\phi} + \beta_2\frac{1}{\sqrt{\phi}} + \beta_3\frac{1}{n^2} + \beta_4\frac{1}{\sqrt{n}} + \beta_5\frac{1}{\sqrt{\alpha}} \tag{43}$$

Adjusted $R^2 = 0.9940$

$$V_{crit} = -0.0244\frac{1}{\phi} + 0.3140\frac{1}{\sqrt{\phi}} - 2.1409\frac{1}{n^2} + 1.0767\frac{1}{\sqrt{n}} + 0.0146\frac{1}{\sqrt{\alpha}} \tag{44}$$

W regression equations for each significance level are as follows:

For $\alpha = 0.20$ Adjusted $R^2 = 0.9963$

$$W_{Crit} = 0.0028\sqrt{n} + 0.1928\frac{1}{\sqrt{n}} - 9.30 \times 10^{-6}\frac{1}{\phi^2} - 1.22 \times 10^{-6}\frac{n}{\phi^2} + 0.0033\frac{n}{\sqrt{\phi}} \tag{45}$$

For $\alpha = 0.15$ Adjusted $R^2 = 0.9966$

$$W_{Crit} = -0.0014\,n + 0.0161\sqrt{n} + 0.1096\frac{1}{\sqrt{n}} - 1.66 \times 10^{-6}\frac{n}{\phi^2} + 0.0036\frac{n}{\sqrt{\phi}} \tag{46}$$

For $\alpha = 0.10$ Adjusted $R^2 = 0.9970$

$$W_{Crit} = -0.0017\,n + 0.0196\,\sqrt{n} + 0.1189\,\frac{1}{\sqrt{n}} - 1.93\times 10^{-6}\,\frac{n}{\phi^2} + 0.0040\,\frac{n}{\sqrt{\phi}} \tag{47}$$

For $\alpha = 0.05$ Adjusted $R^2 = 0.9975$

$$W_{Crit} = -0.0022\,n + 0.0255\,\sqrt{n} + 0.1336\,\frac{1}{\sqrt{n}} - 2.34\times 10^{-6}\,\frac{n}{\phi^2} + 0.0045\,\frac{n}{\sqrt{\phi}} \tag{48}$$

For $\alpha = 0.01$ Adjusted $R^2 = 0.9980$

$$W_{Crit} = -0.0032\,n + 0.0389\,\sqrt{n} + 0.1661\,\frac{1}{\sqrt{n}} - 3.19\times 10^{-6}\,\frac{n}{\phi^2} + 0.0054\,\frac{n}{\sqrt{\phi}} \tag{49}$$

The regression equations (21) through (42) can be used to estimate critical values for shape parameters and sample sizes which are not listed in tables in Appendix E. Equation (27) and (44) can also be used to estimate critical values for significance levels which are not listed in the tables.

4.4 Power Tables for Basic GOFTs

Tables F.1 through F.30 in Appendix F display the results of the power analysis. For each level of significance α = 0.20, 0.15, 0.10, 0.05, and 0.01; sample sizes n = 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, and 100, the tables indicate relative powers of the modified Kolmogorov-Smirnov (KS), the Anderson-Darling (AD), the Cramer-von Mises (CV), the Kupier (V), and the Watson (W). Power in the probability that the test will reject a null hypothesis incorrectly claims that a random sample of data follows an inverse Gaussian distribution. Tables F.1-10 , F.21-25 show power values when the null hypothesized inverse Gaussian CDF has mean $\mu = 1$ and shape parameter $\phi = 1$. In Tables F.11-20, F.26-30 null hypothesized inverse Gaussian CDF has mean μ = 1 and shape parameter ϕ = 5. The values in the last column of power tables approximate the significance level α, since they represent rejection rates of the null hypothesis when H_0 is true. However, all other columns represent power values since they indicate rejection rates of the null hypothesis when H_0 is in fact false. Figures 11-17 show power analysis results in graphs.

The power study revealed an excellent discriminatory ability for all five of the tests against the gamma, exponential, and uniform alternatives, moderate power against the Weibull alternative, and poor discriminatory ability against the lognormal alternative. These results support the findings of the previous study on goodness-of-fit of the inverse Gaussian densities by Edgeman, Rick L., et al in 1992.(31) On the other hand, when the alternate distribution is very similar in shape, the W test gives the best power against the alternate distribution. Otherwise, the AD test is more powerful in discriminating the null hypothesis. KS and V have the same power in all cases studied.

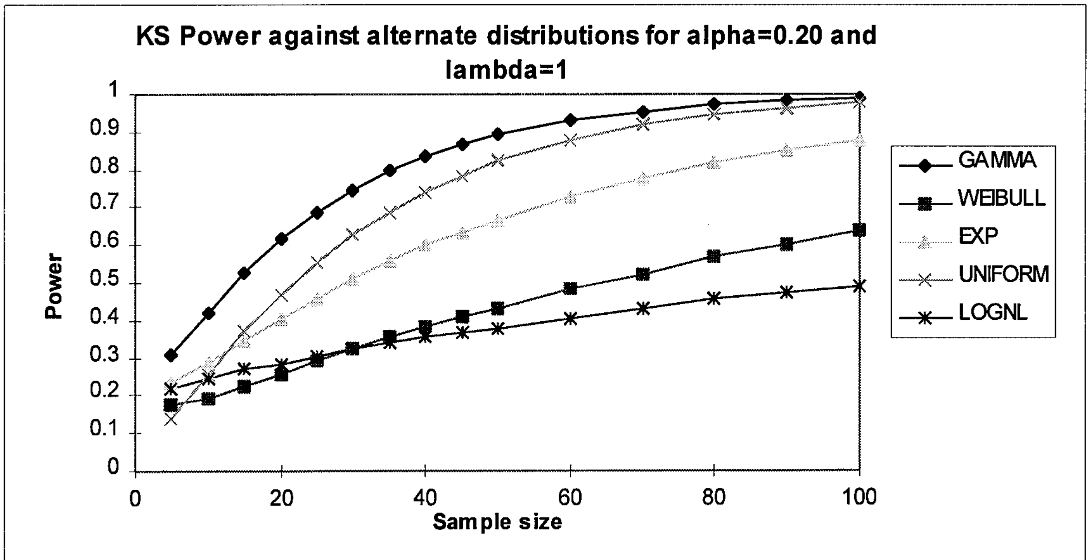
To provide more information, an additional power study was done. The alternate distributions used were the gamma with shape = 0.8 and scale = 2.0, the Weibull with shape =1.15 and scale = 0.75, the Weibull with shape = 4 and scale = 1.5, the lognormal with mean = e and variance = e^3- e^2, the lognormal with mean = $e^{0.38}$ and variance = $e^{1.12}$- $e^{0.76}$, the exponential, the uniform, the inverse Gaussian with mean =1 and scale =1, the inverse Gaussian with mean =1 and scale = 5, the inverse Gaussian with mean =1 and scale =10, and the inverse Gaussian with mean =1 and scale = 20. Ten Thousand random samples of size n were generated for each of the alternate distributions. Tables F.31 through F.42 in Appendix F display the results of the additional power analysis. For each level of significance α = 0.20, 0.10, and 0.01; sample sizes n = 10, 20, 30, 40, and 50, the tables indicate relative powers of the modified Kolmogorov-Smirnov (KS), the Anderson-Darling (AD), the Cramer-von Mises (CV), the Kupier (V), and the Watson (W) tests to reject a null hypothesis when the hypothesis claims that a random sample of data follows an inverse Gaussian distribution with a certain shape parameter. Tables F.31-33 show power values when the null hypothesized inverse Gaussian CDF has mean μ = 1 and shape parameter ϕ = 1. In Tables F.34-36, F37-39, and F.40-42 null hypothesized inverse Gaussian CDF has mean μ = 1 and shape parameter ϕ = 5, 10, and 20, respectively. Generally, the tests are able to distinguish between the inverse Gaussian and

distributions of very different shape. They can also distinguish more skewed distributions than the null hypothesized inverse Gaussian, but are unable to discriminate between the inverse Gaussian and distributions of similar shape or distributions of more symmetric shape than the null hypothesized inverse Gaussian distribution.

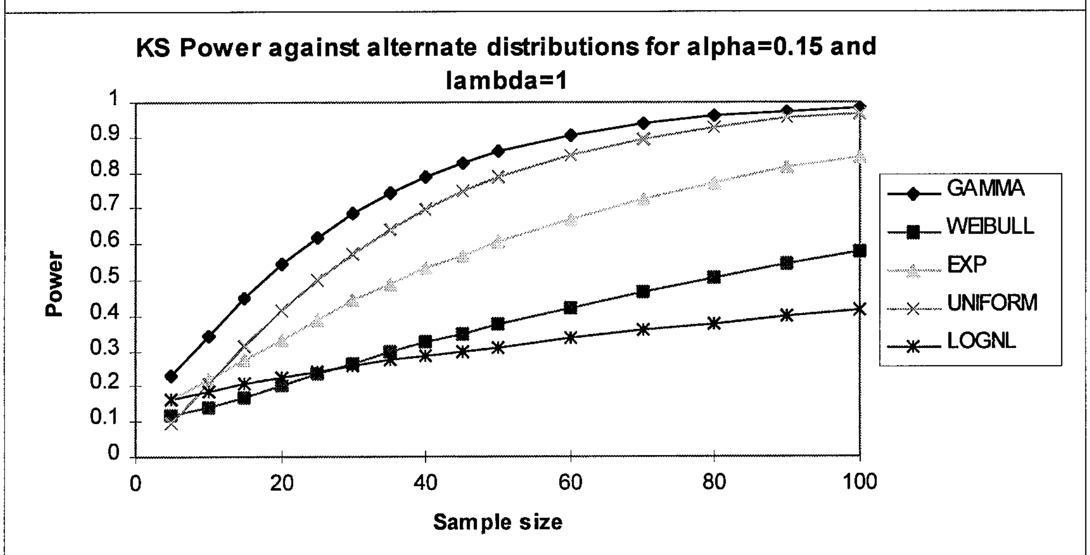
The power analysis has verified the validity of the critical values for all five tests which achieve the claimed level of significance when the null hypothesis is true. Power analysis tables in Appendix F can then be used to draw conclusions regarding the relative ability of a test to correctly reject a false null hypothesis. This information can be used to select the best test for a given situation.

4.5 Power Tables for the Sequential GOFTs

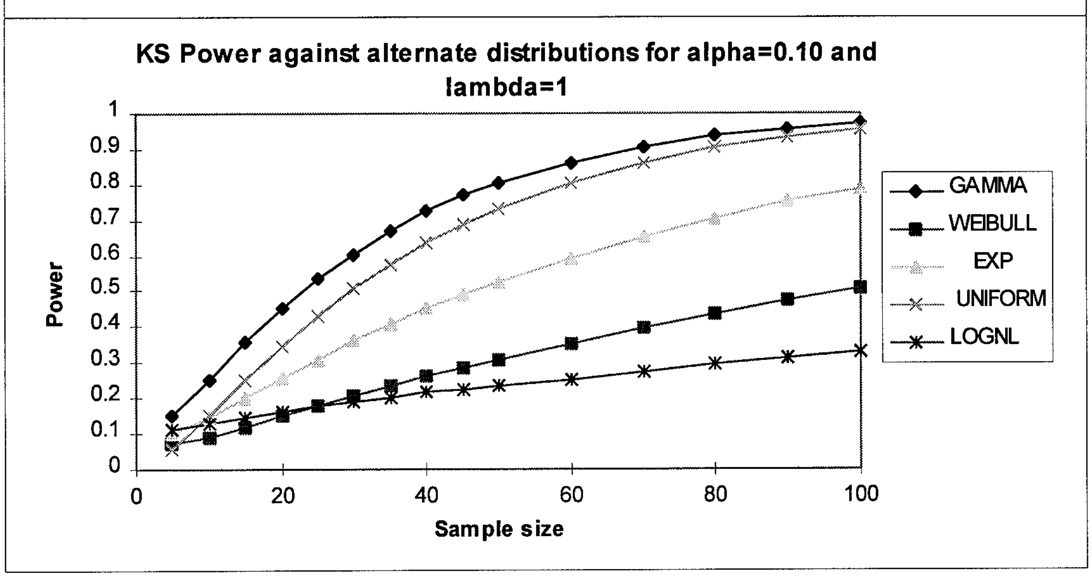
Tables G.1 through G.180 in Appendix G display the results of the sequential power study. The power of a sequential test at any significance level is somewhere between the power of the two individual tests which forms the sequential test at a specific significance level. Tables in Appendix G with sample sizes 10 and 50 were plotted in Figure 18 to display the sequential power results more clearly.



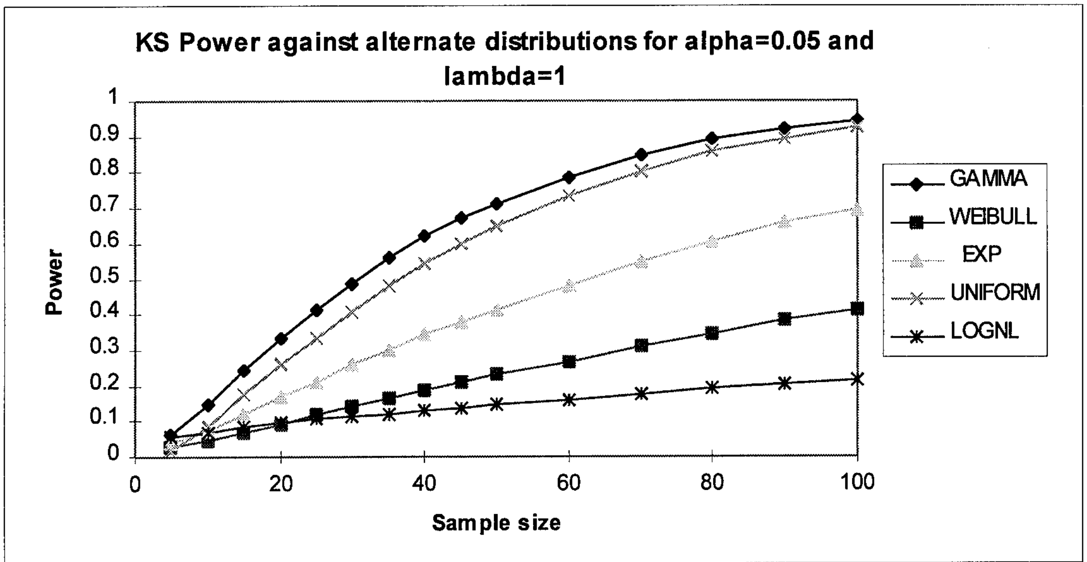
KS Power against alternate distributions for alpha=0.20 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

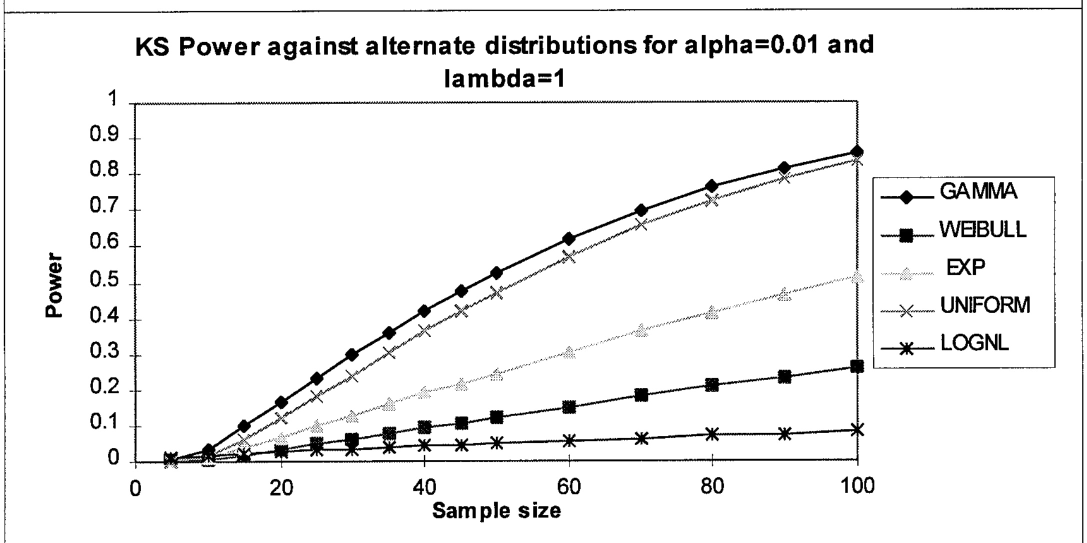


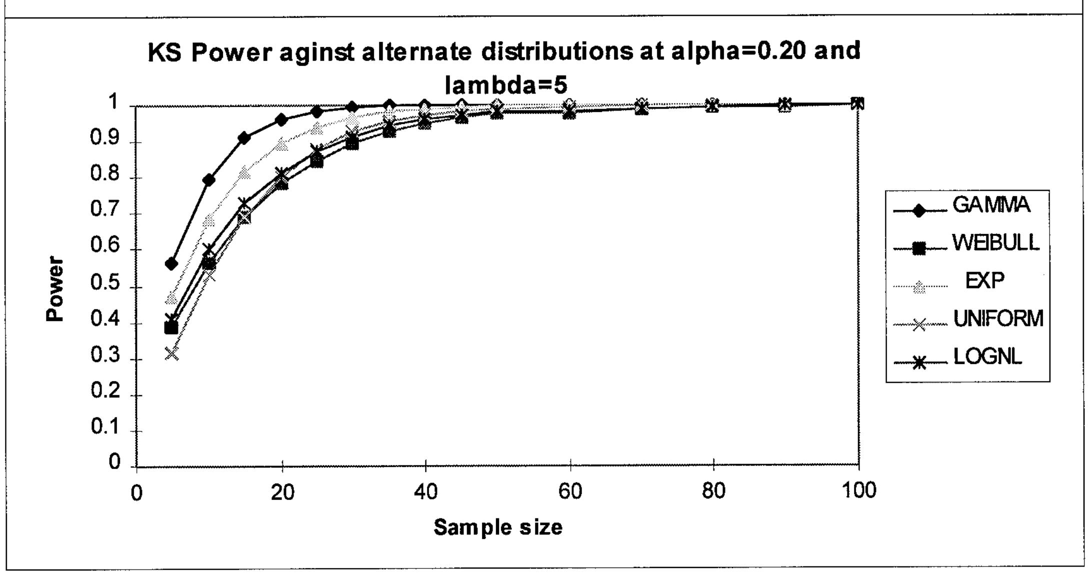
KS Power against alternate distributions for alpha=0.15 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

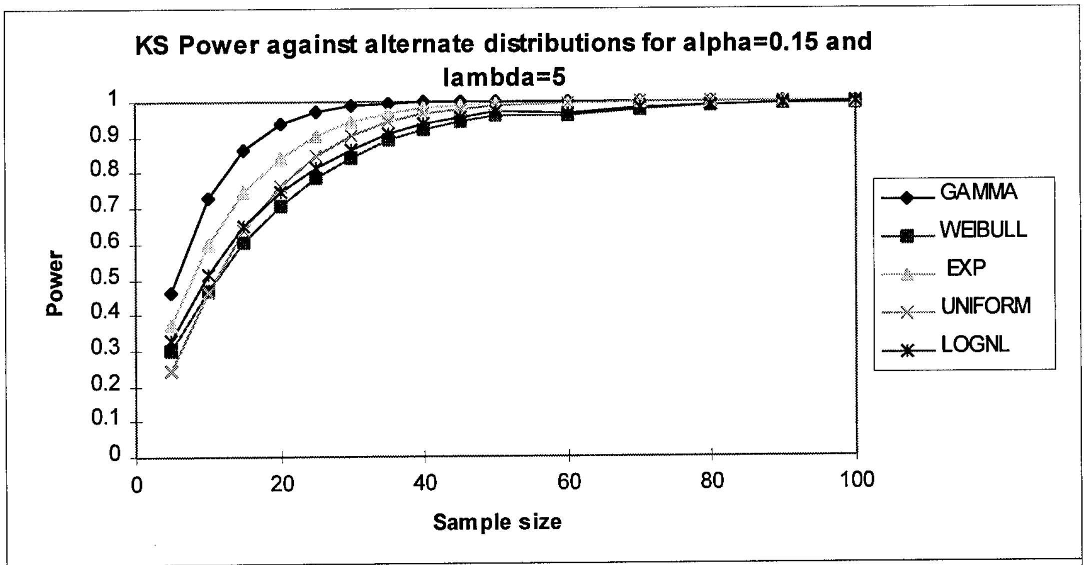


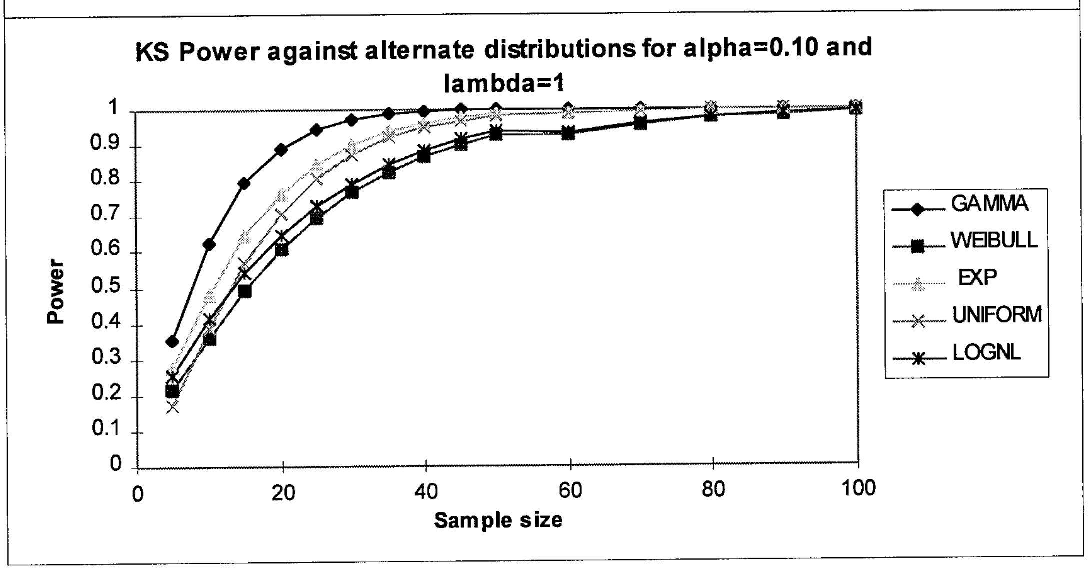
KS Power against alternate distributions for alpha=0.10 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

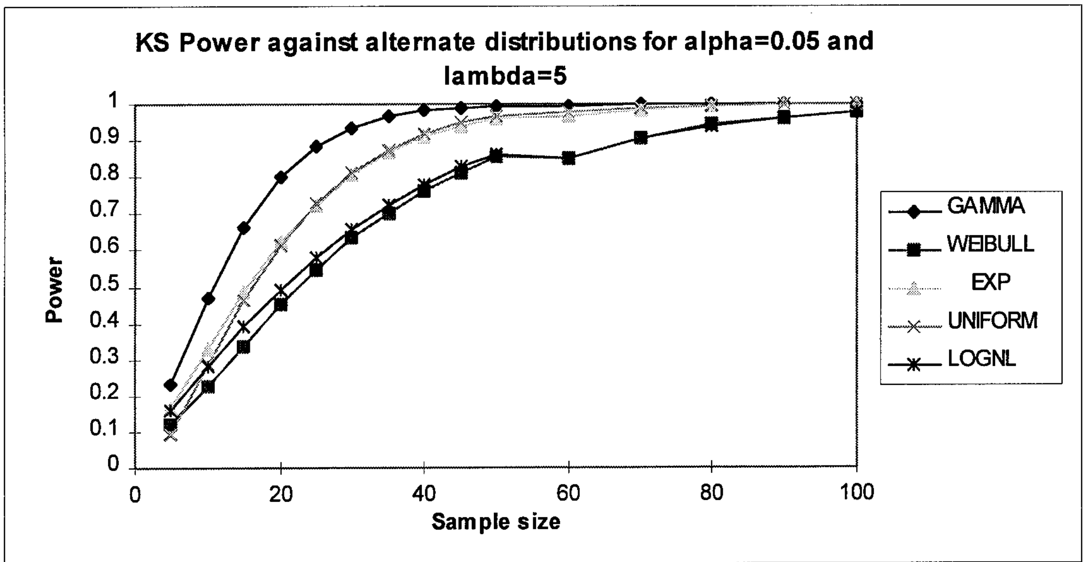

KS Power against alternate distributions for alpha=0.05 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


KS Power against alternate distributions for alpha=0.01 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


KS Power aginst alternate distributions at alpha=0.20 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


KS Power against alternate distributions for alpha=0.15 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
20
40
60
80
100


KS Power against alternate distributions for alpha=0.10 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
20
40
60
80
100



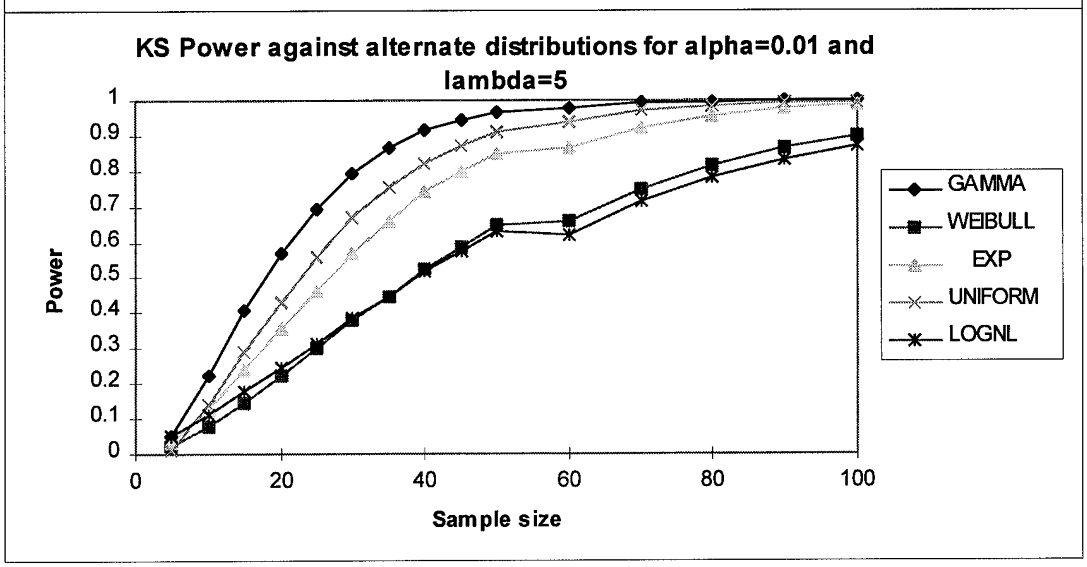
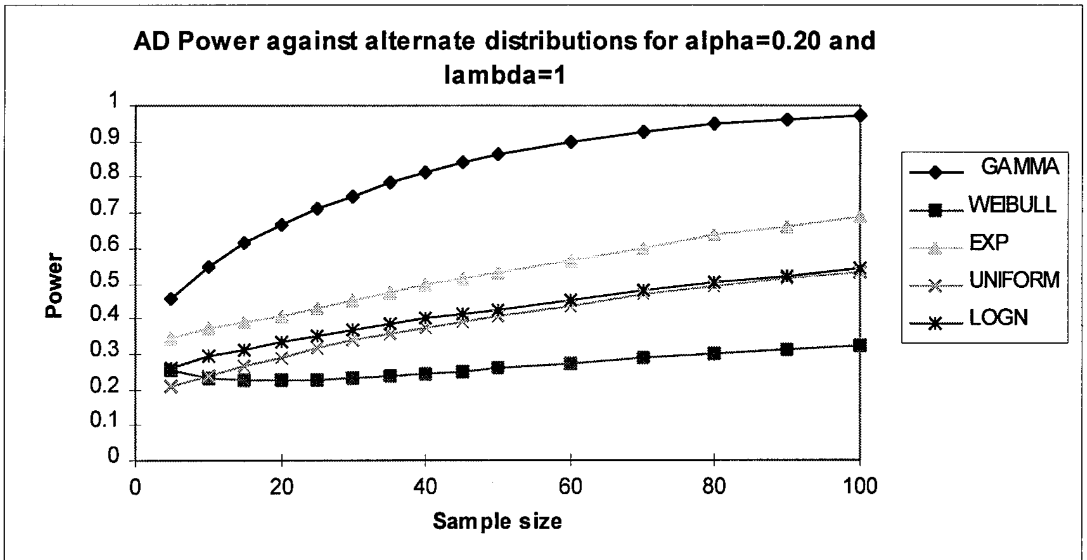
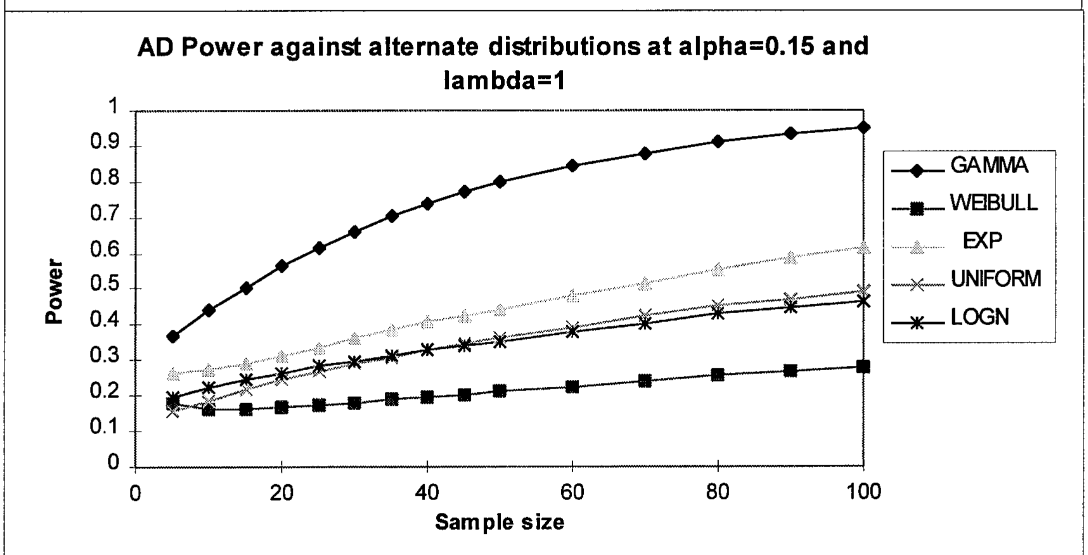
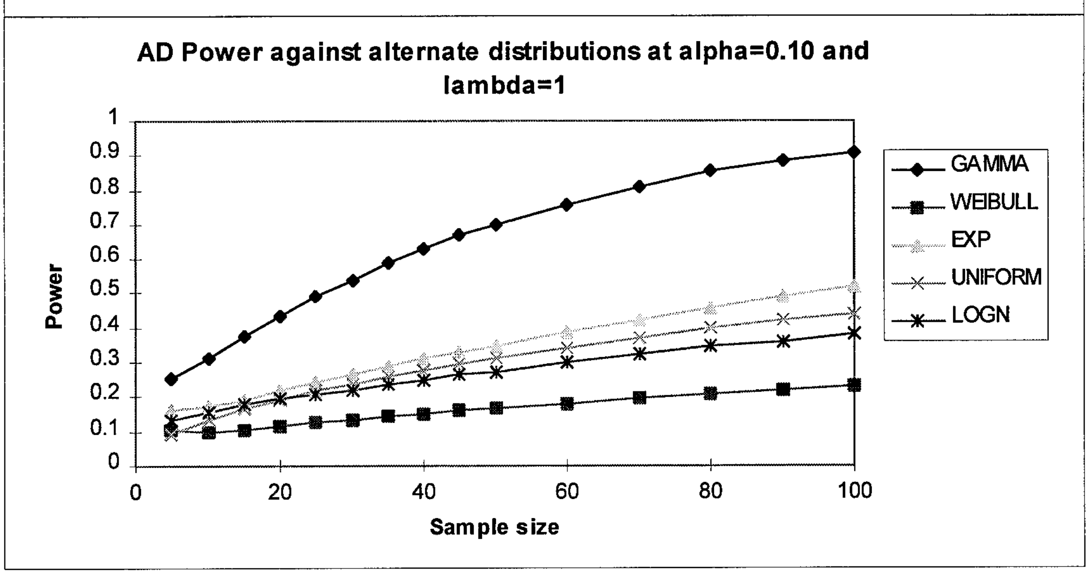
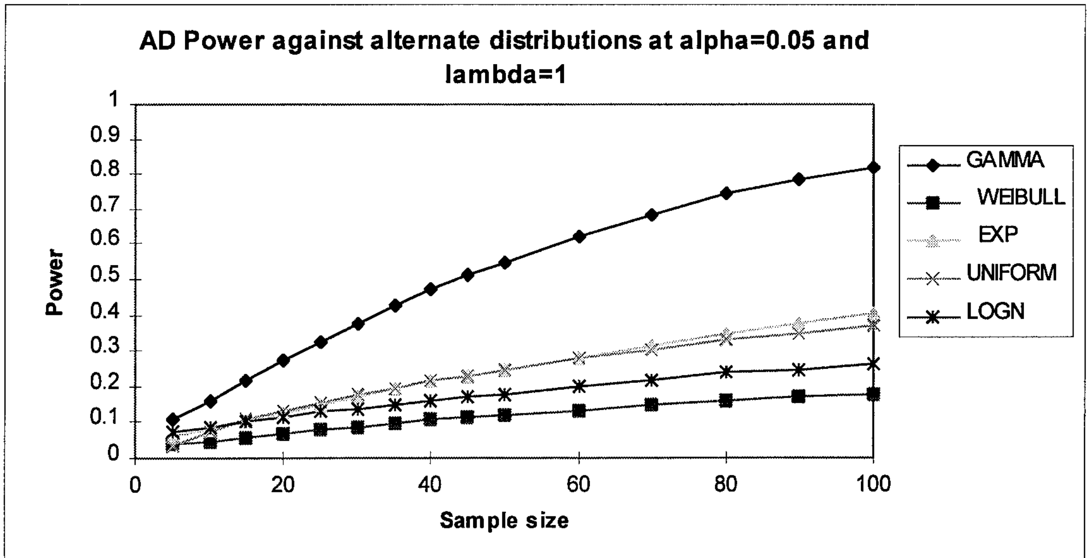


Figure 11 Graphs of KS Power

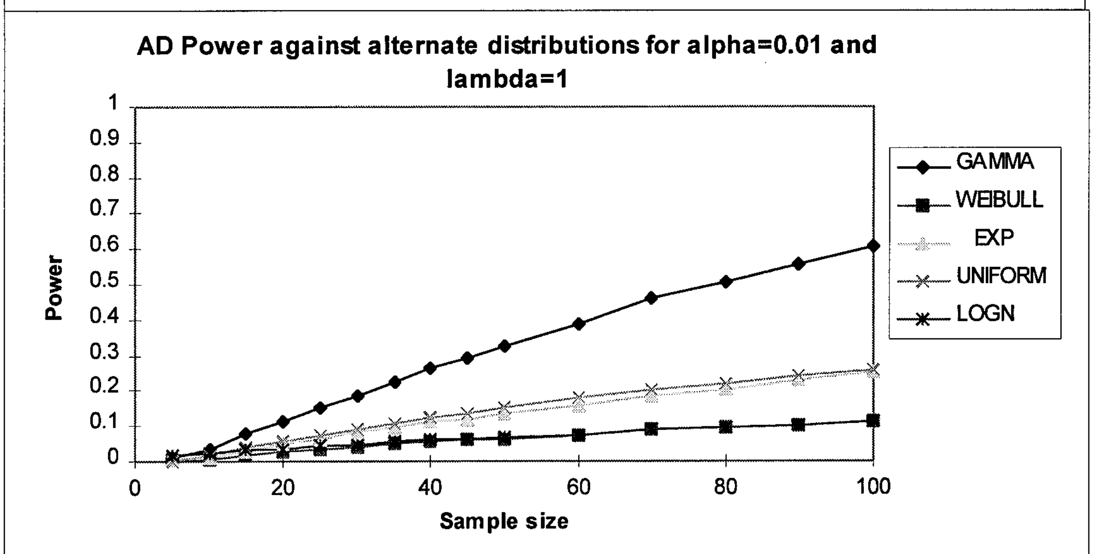

AD Power against alternate distributions for alpha=0.20 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGN


AD Power against alternate distributions at alpha=0.15 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGN

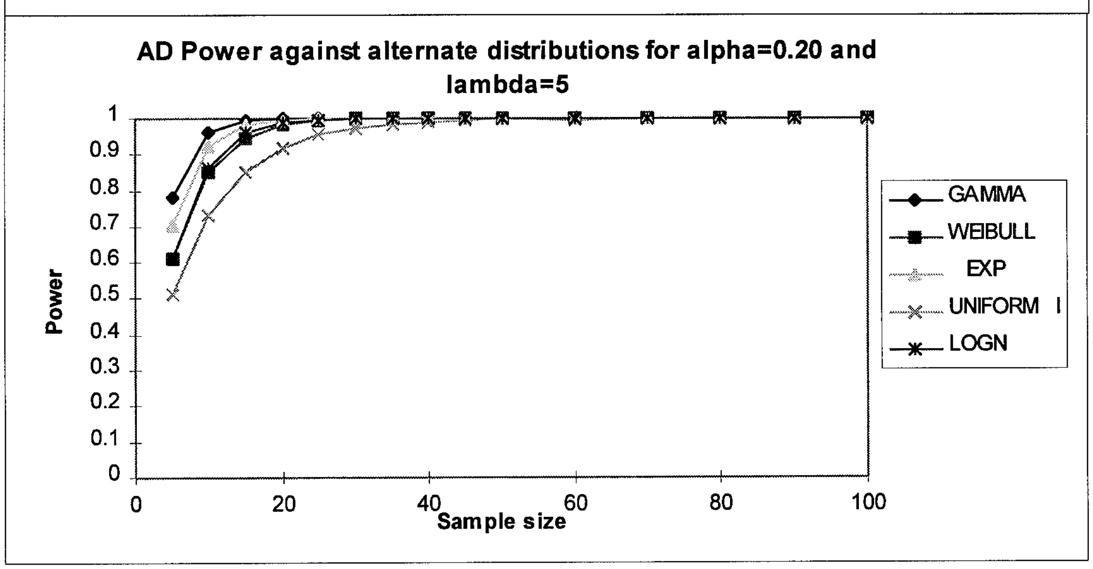

AD Power against alternate distributions at alpha=0.10 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGN



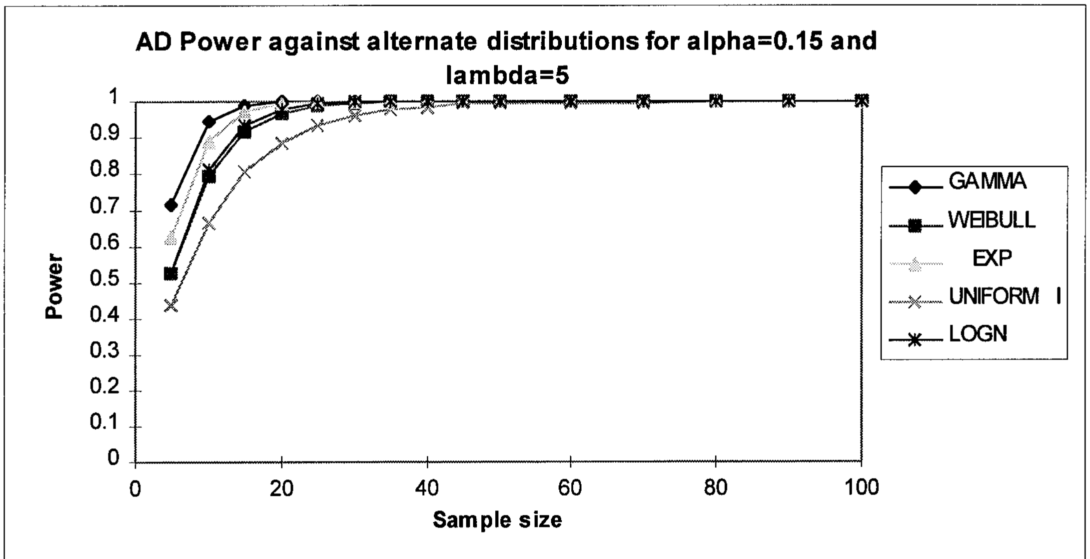
AD Power against alternate distributions at alpha=0.05 and lambda=1

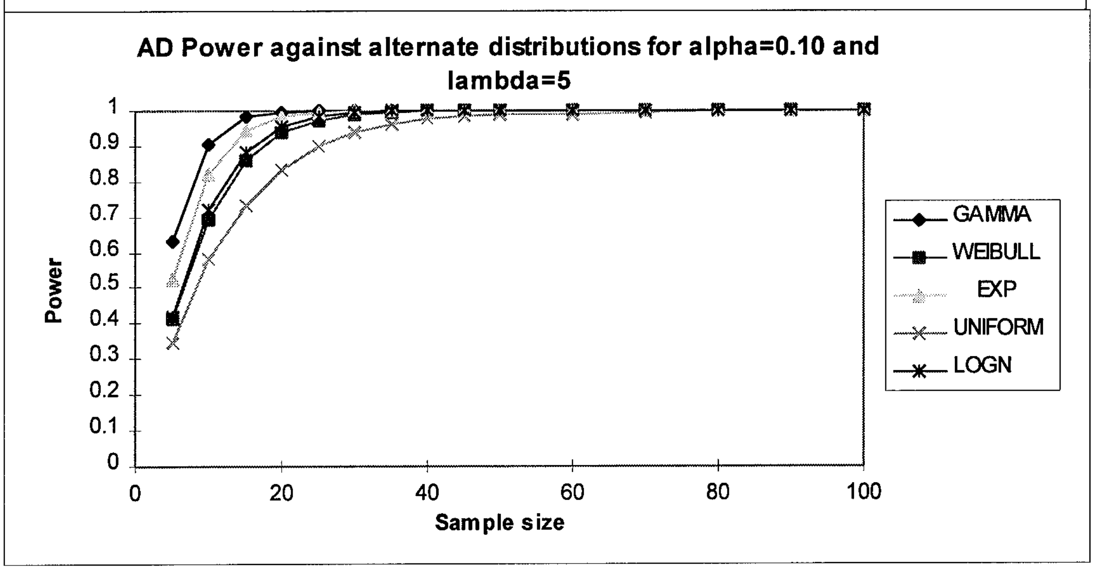


AD Power against alternate distributions for alpha=0.01 and lambda=1



AD Power against alternate distributions for alpha=0.20 and lambda=5


AD Power against alternate distributions for alpha=0.15 and lambda=5
Power
Sample size
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGN


AD Power against alternate distributions for alpha=0.10 and lambda=5
Power
Sample size
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGN

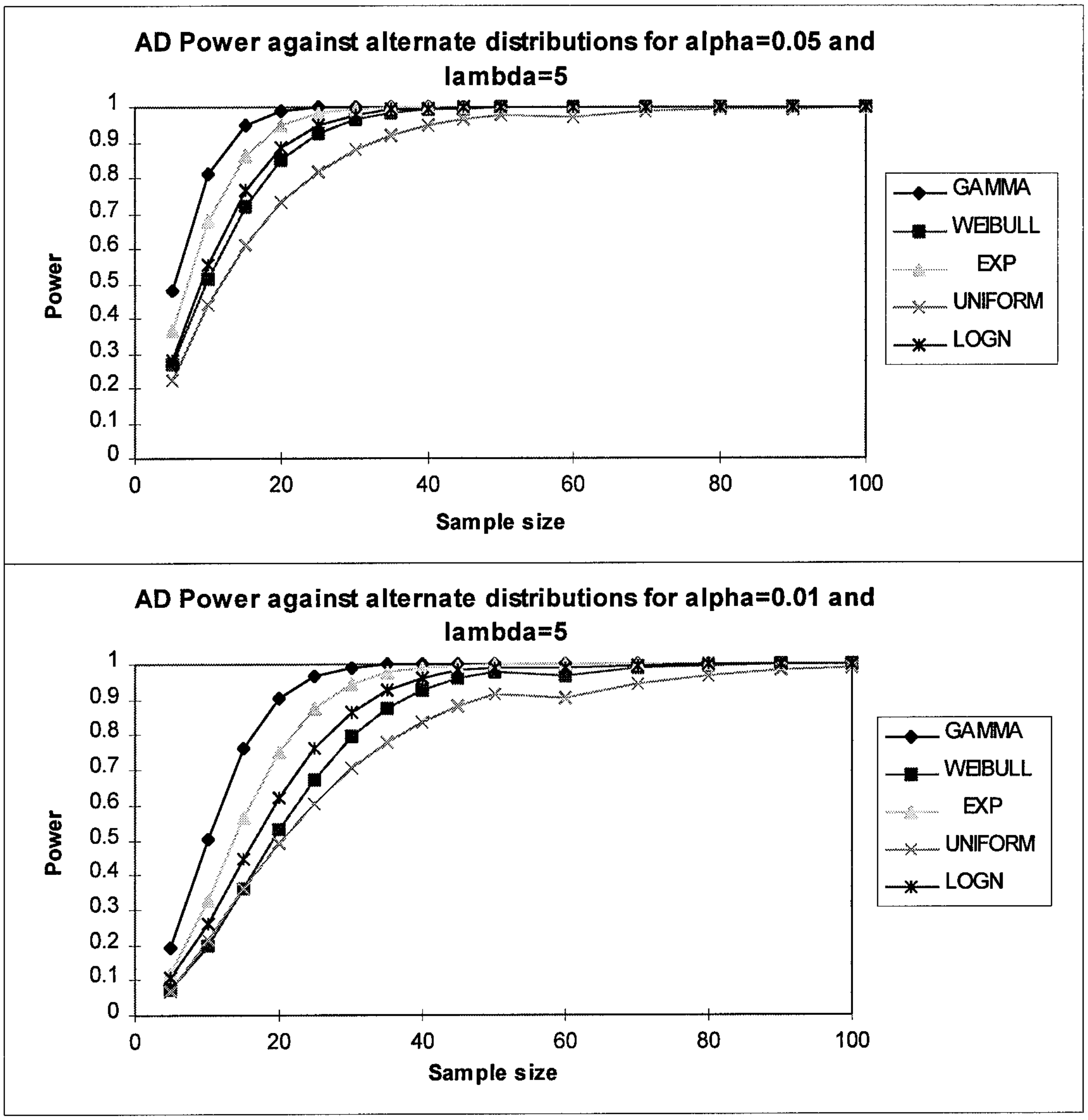
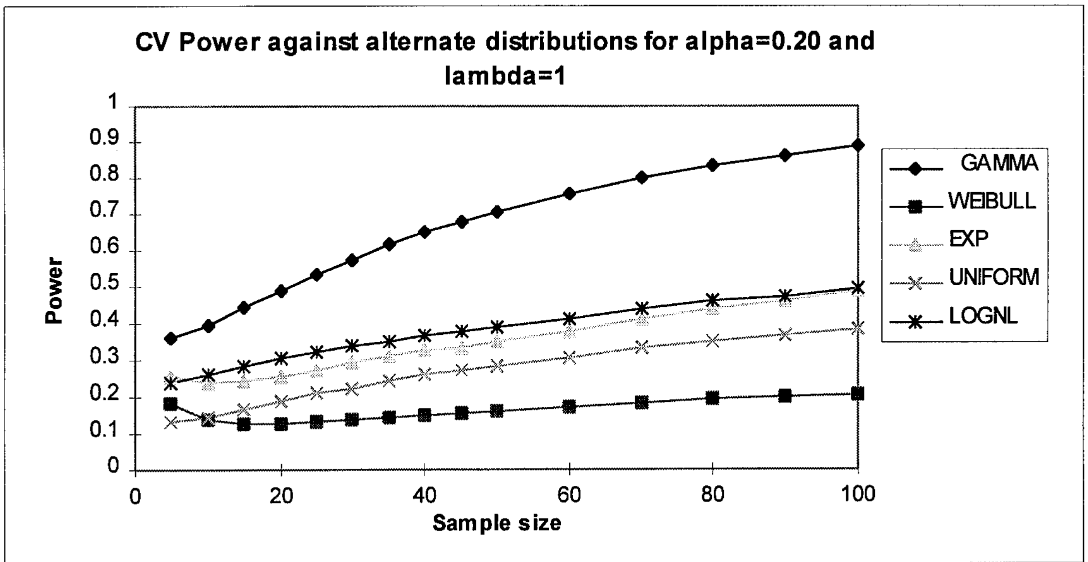
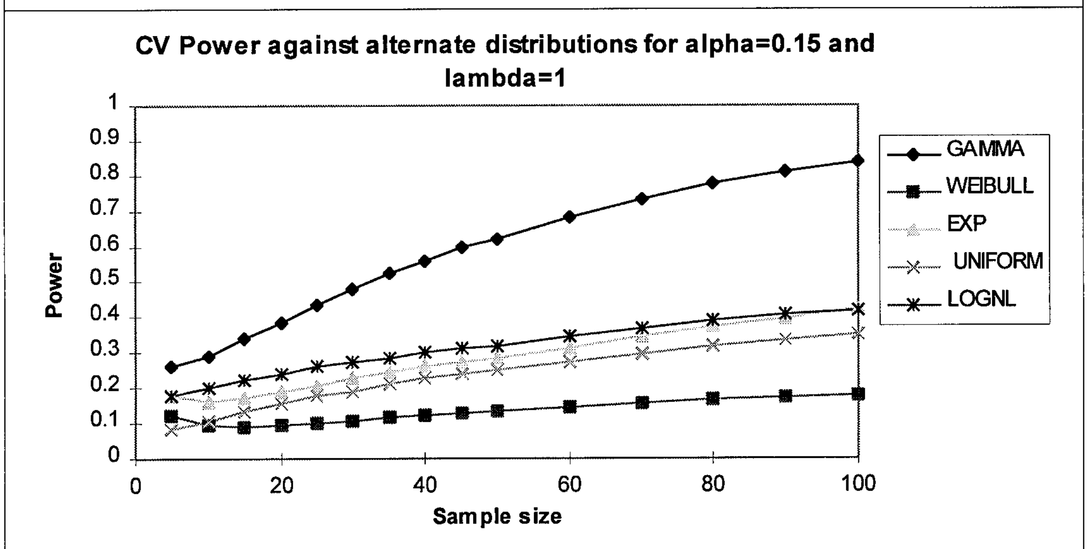
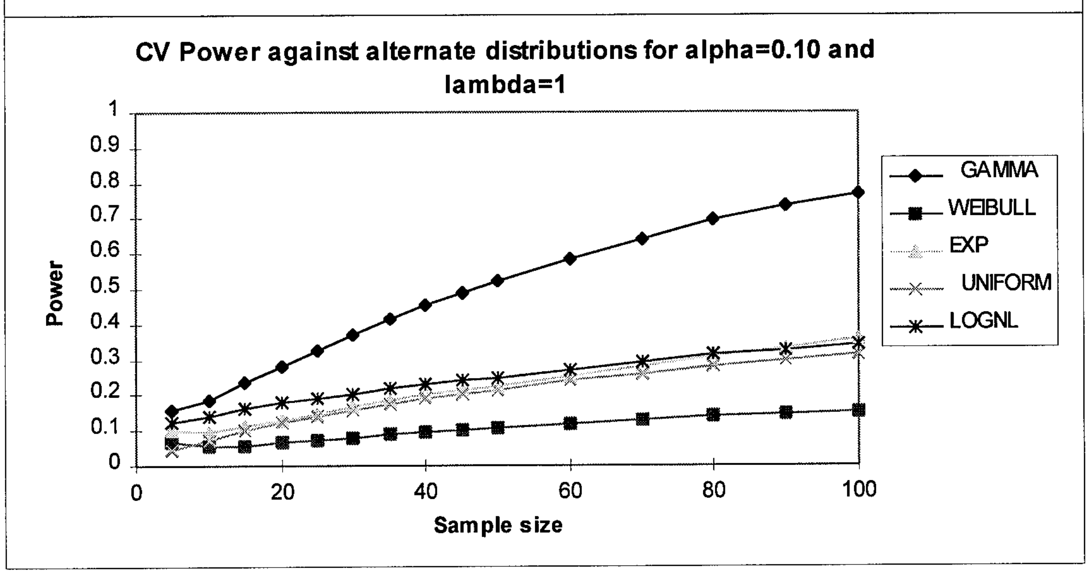
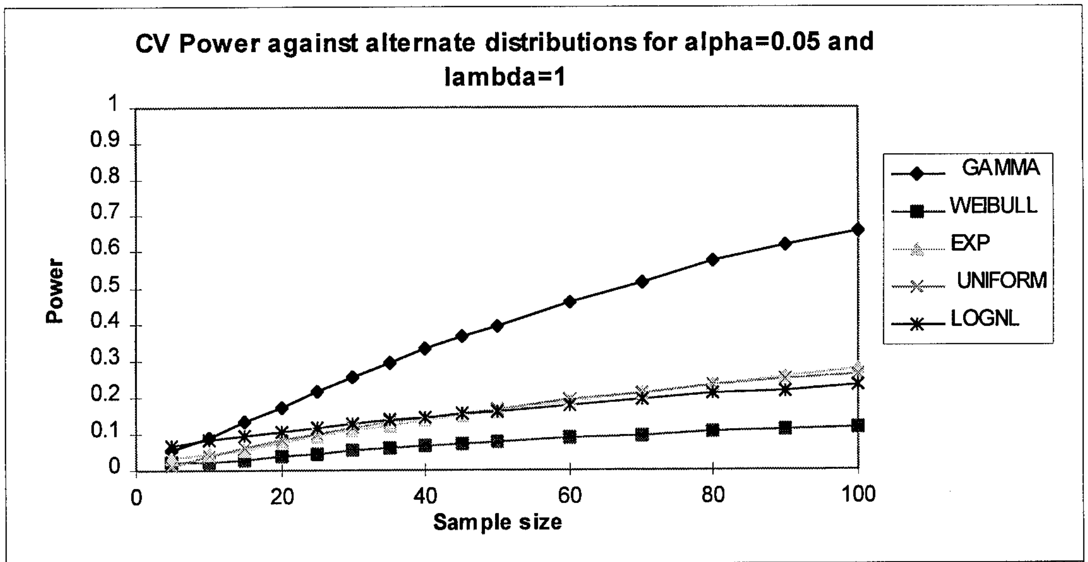


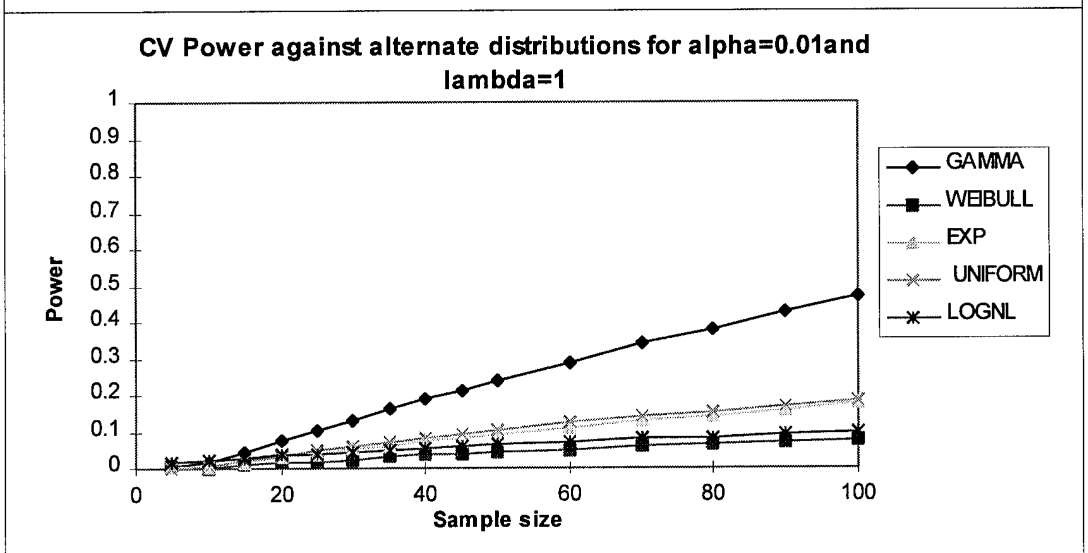
Figure 12 Graphs of AD Power

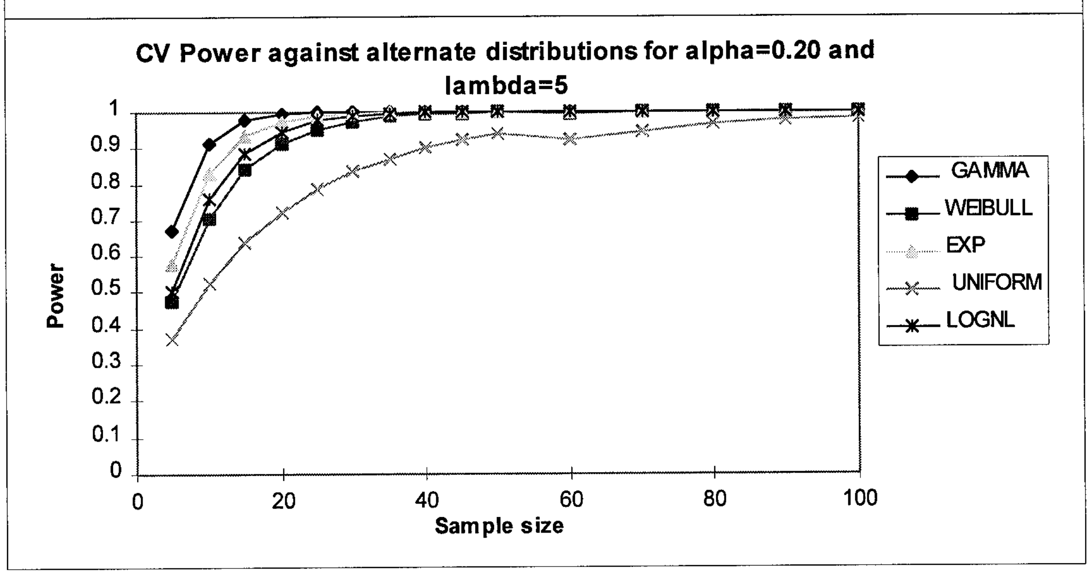

CV Power against alternate distributions for alpha=0.20 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

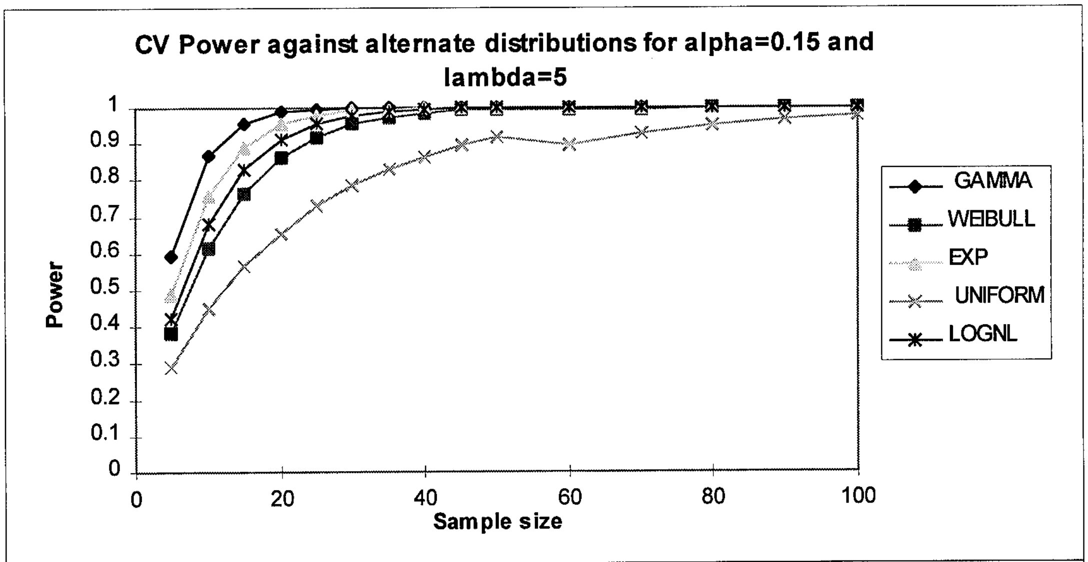

CV Power against alternate distributions for alpha=0.15 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

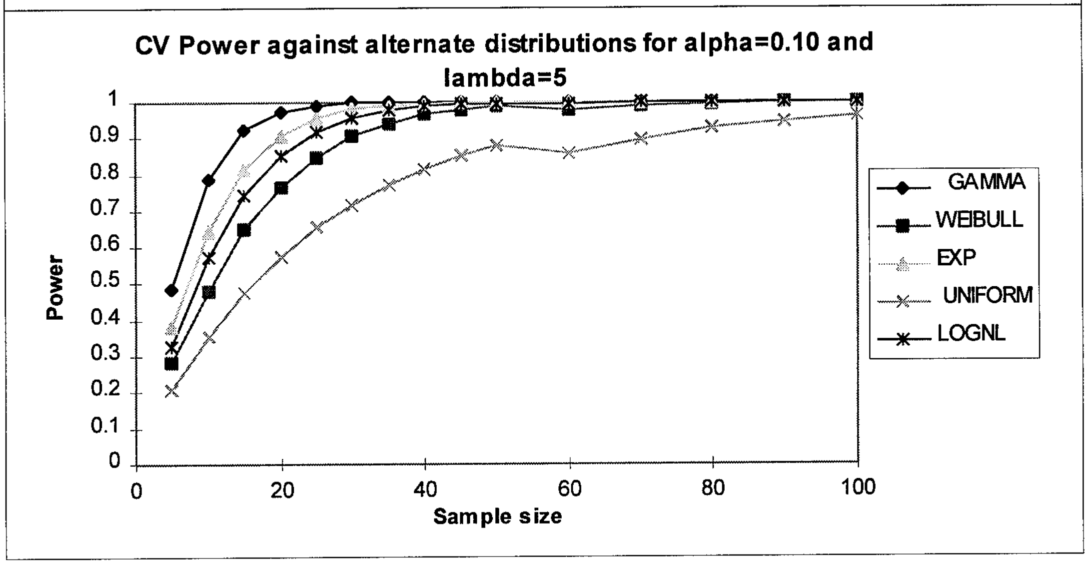

CV Power against alternate distributions for alpha=0.10 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


CV Power against alternate distributions for alpha=0.05 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


CV Power against alternate distributions for alpha=0.01and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


CV Power against alternate distributions for alpha=0.20 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


CV Power against alternate distributions for alpha=0.15 and lambda=5
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
80
100
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


CV Power against alternate distributions for alpha=0.10 and lambda=5
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
80
100
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

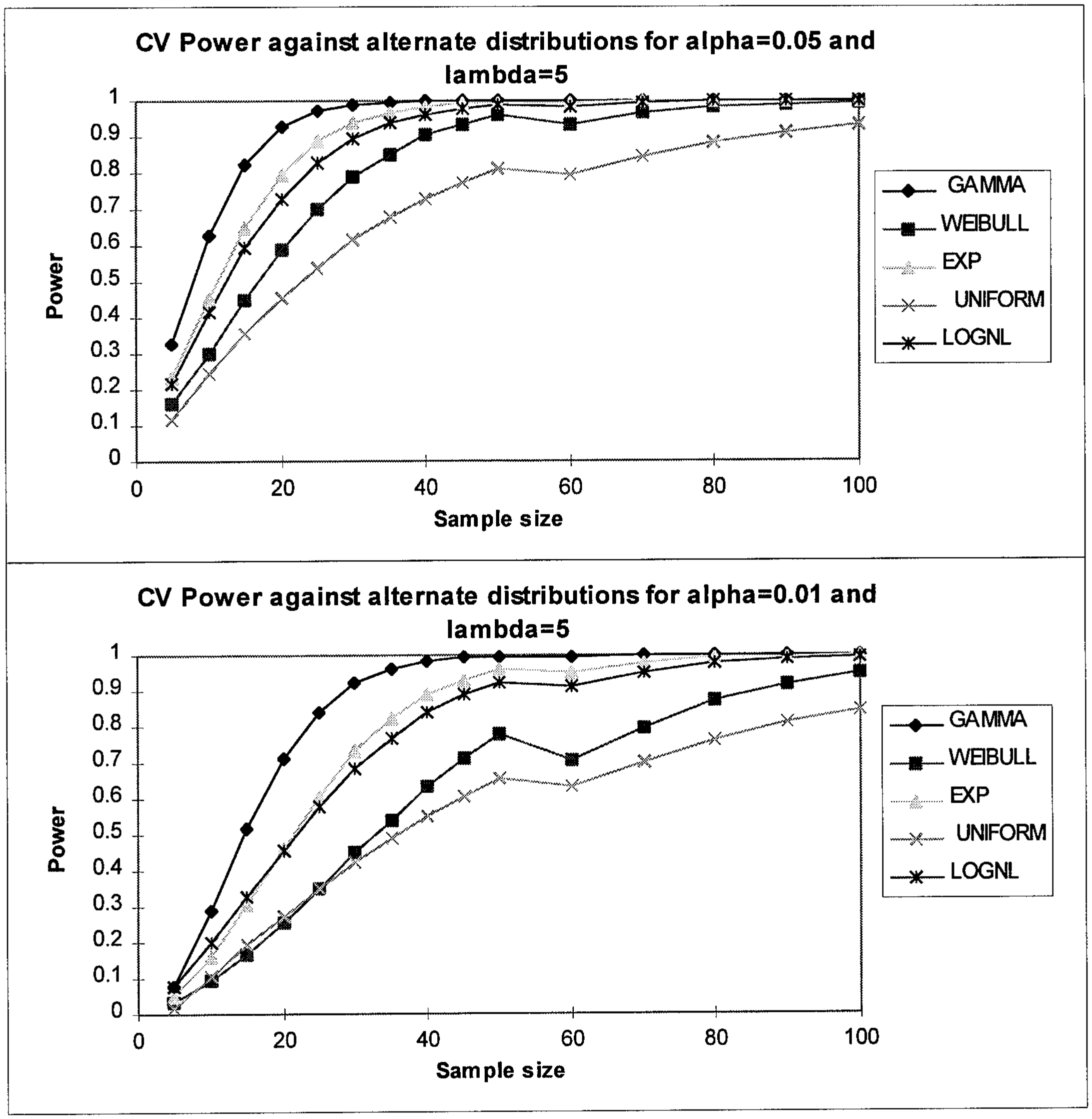
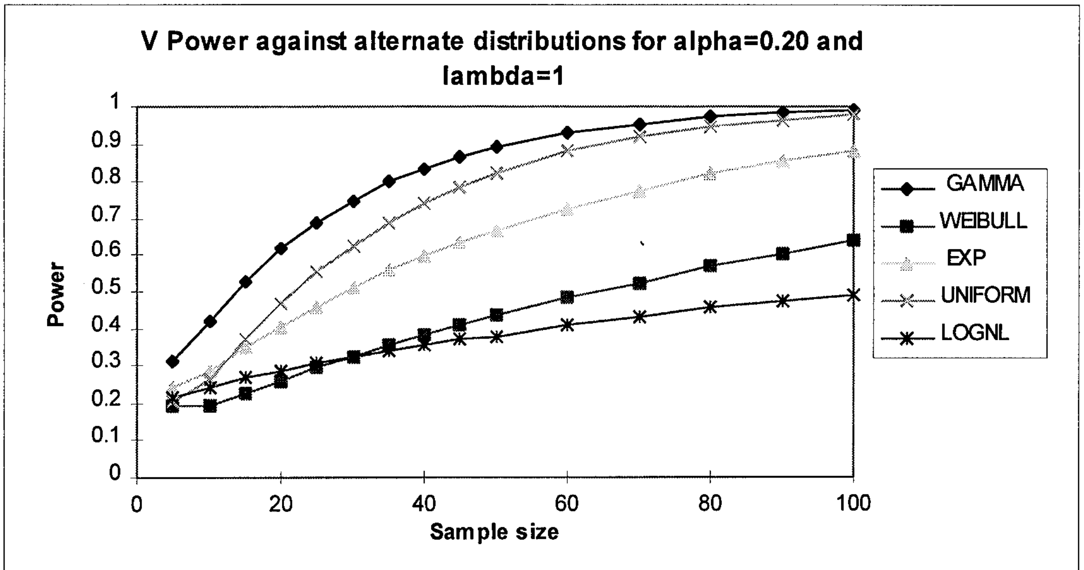
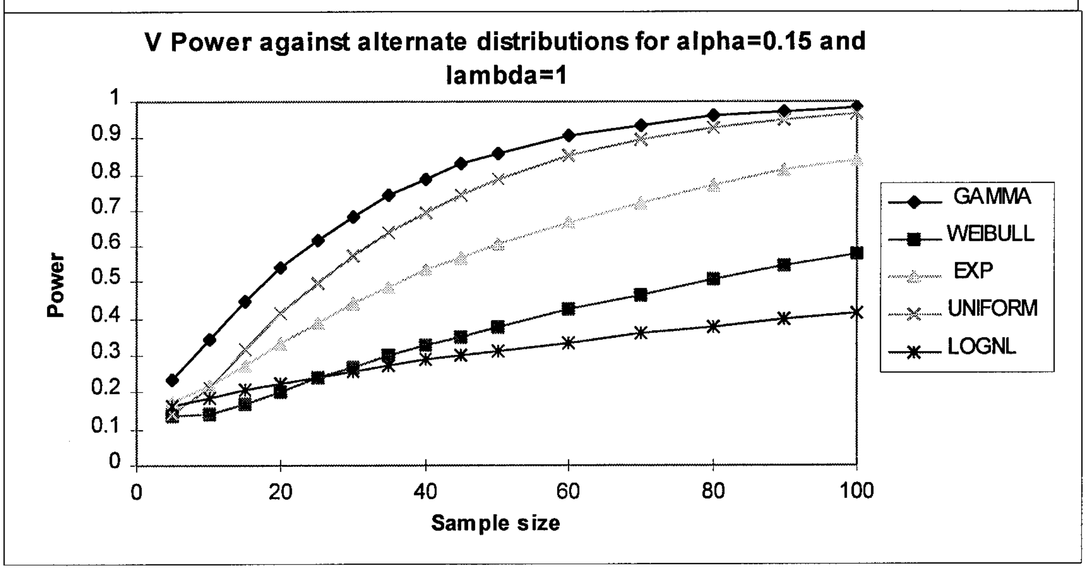
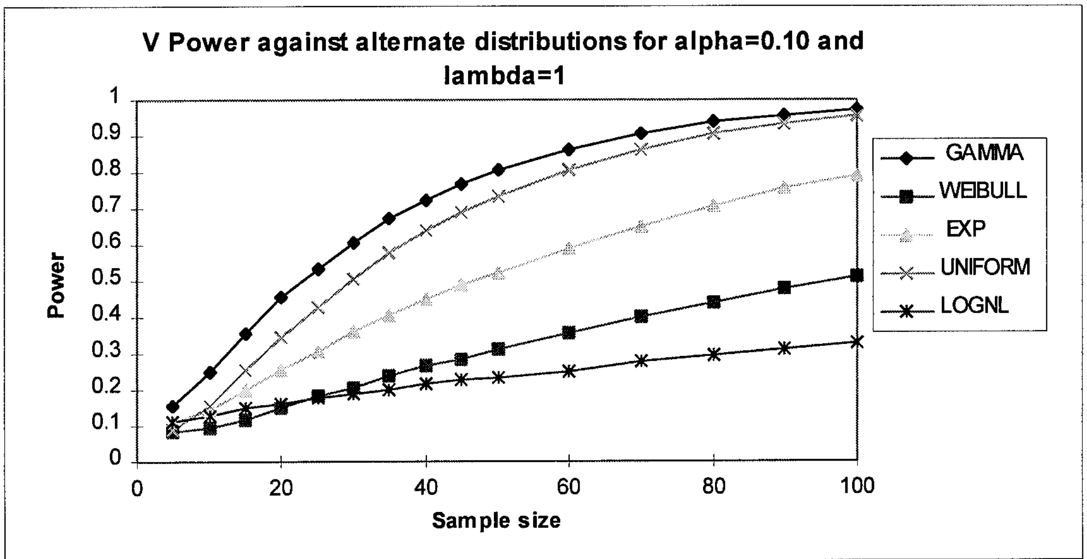
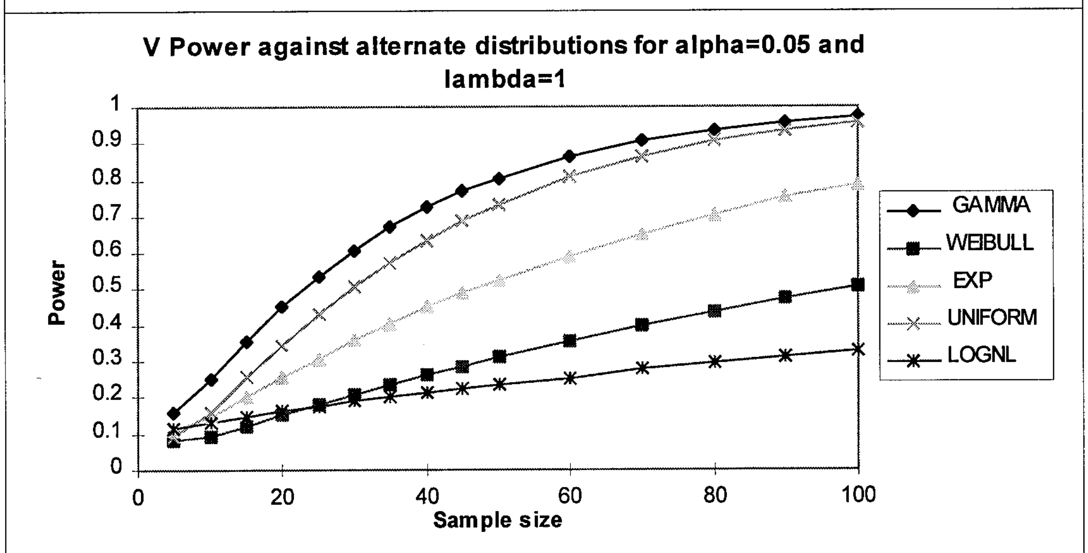


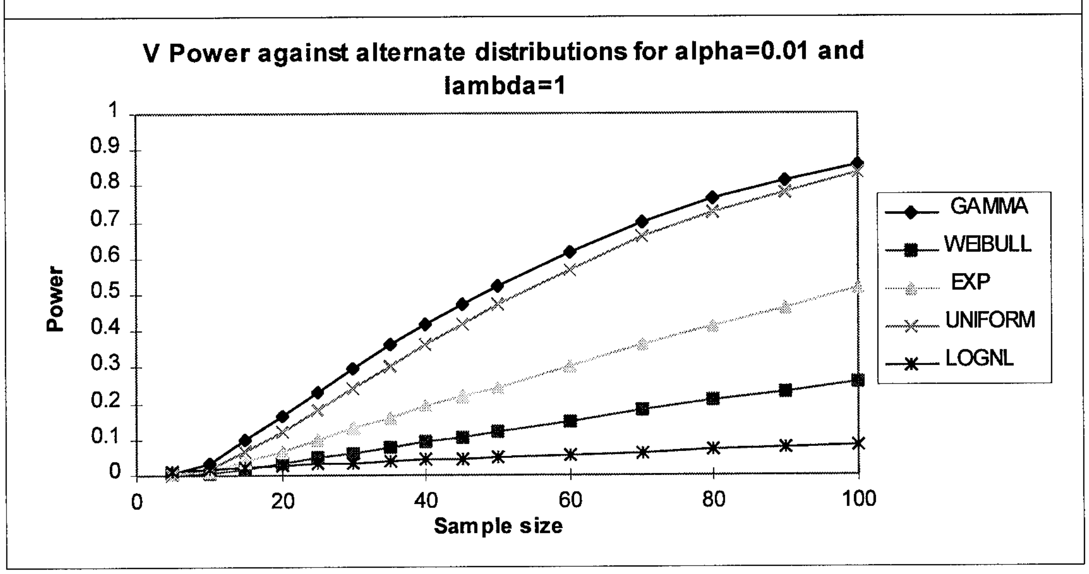
Figure 13 Graphs of CV Power

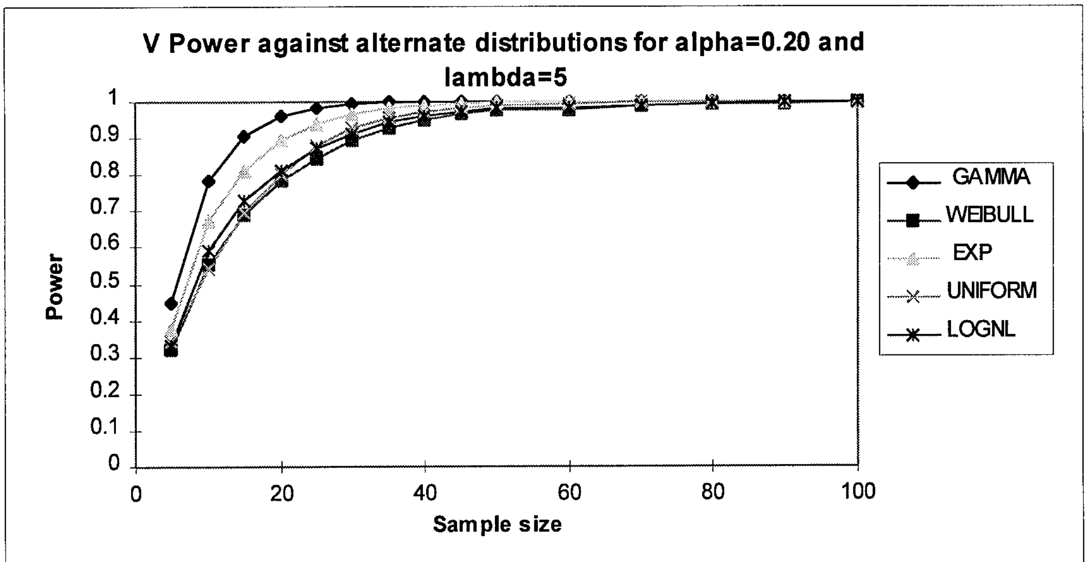

V Power against alternate distributions for alpha=0.20 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

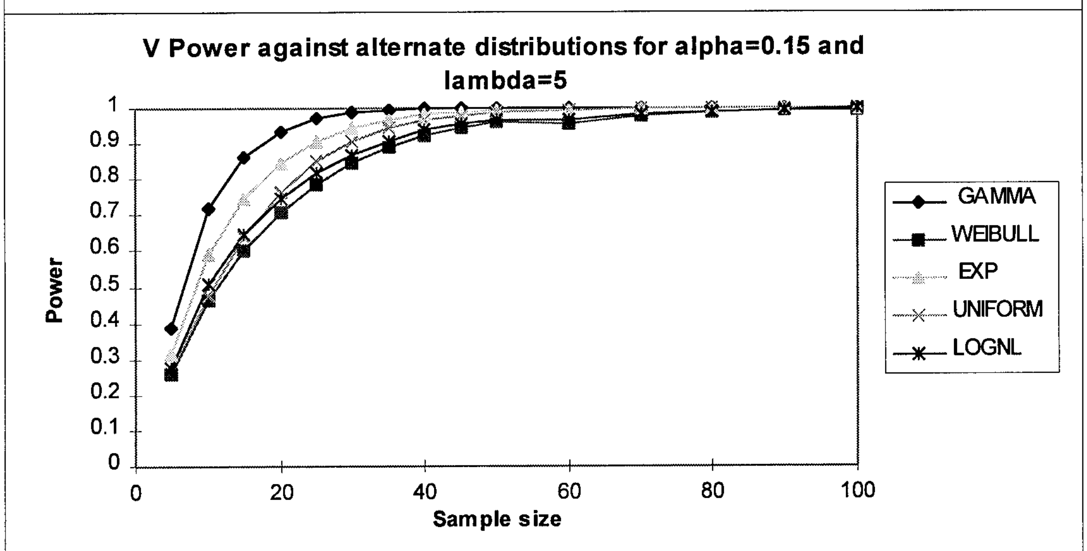

V Power against alternate distributions for alpha=0.15 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

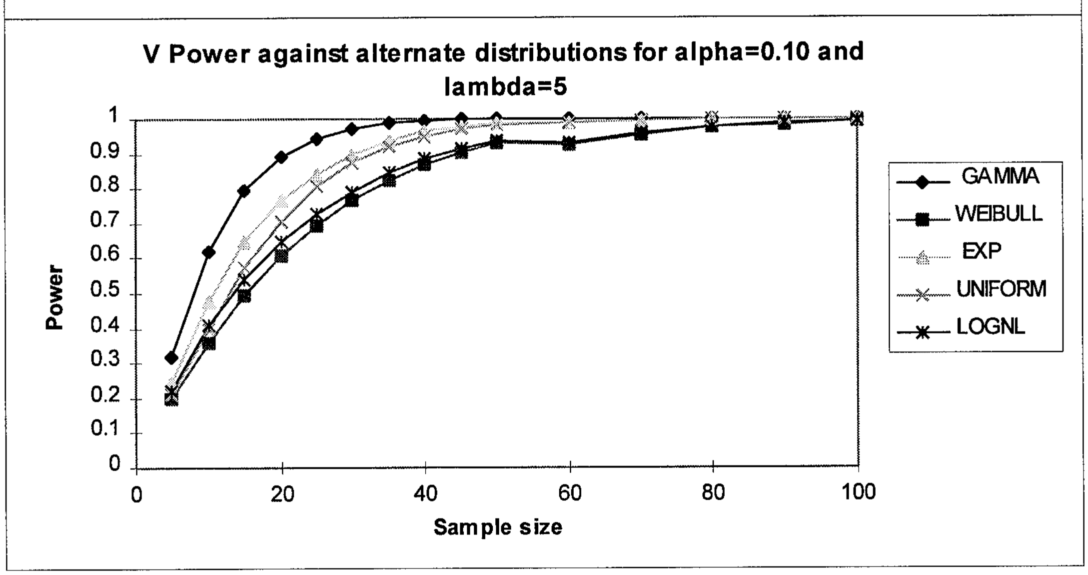

V Power against alternate distributions for alpha=0.10 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


V Power against alternate distributions for alpha=0.05 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


V Power against alternate distributions for alpha=0.01 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


V Power against alternate distributions for alpha=0.20 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


V Power against alternate distributions for alpha=0.15 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


V Power against alternate distributions for alpha=0.10 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

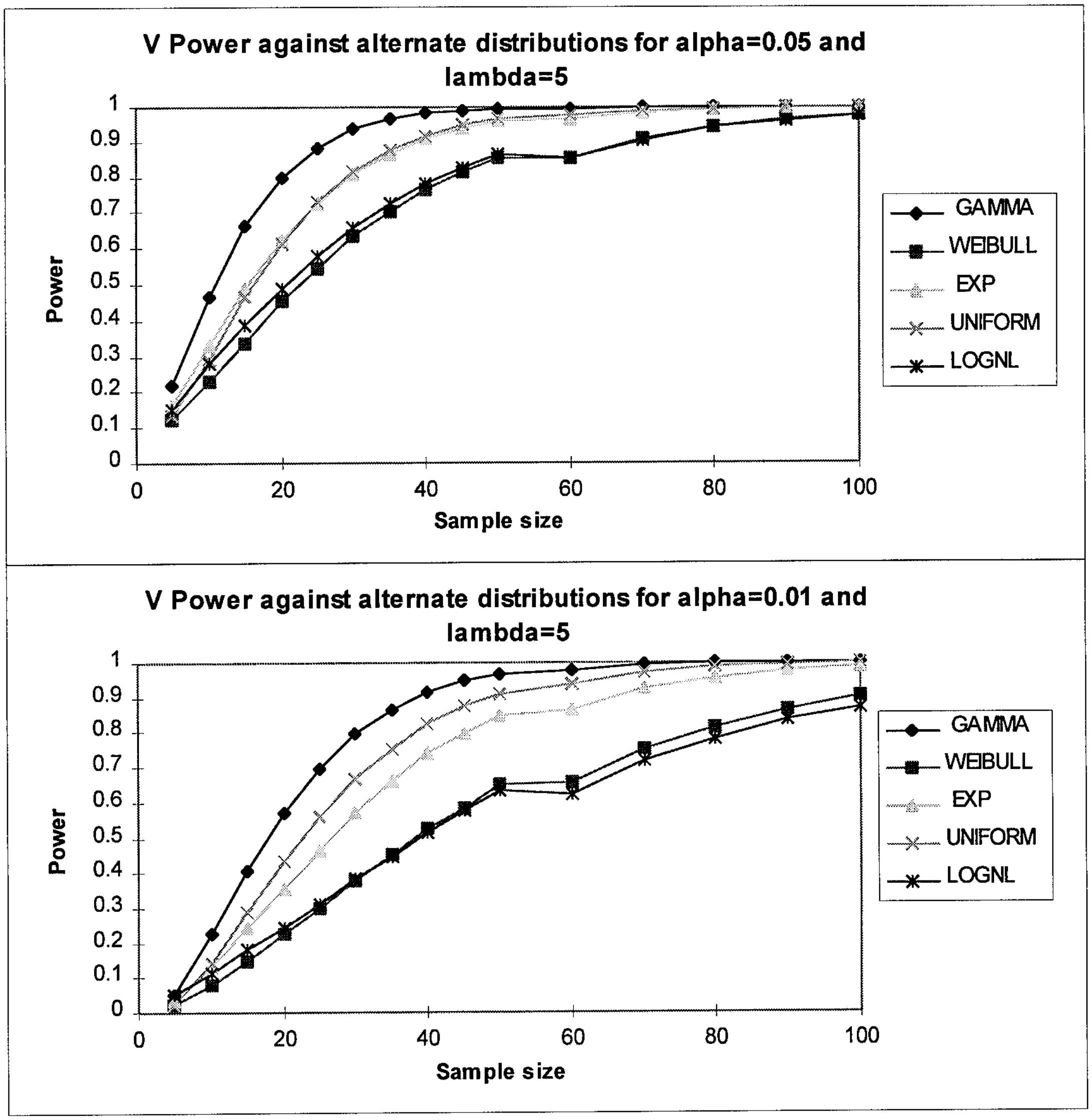
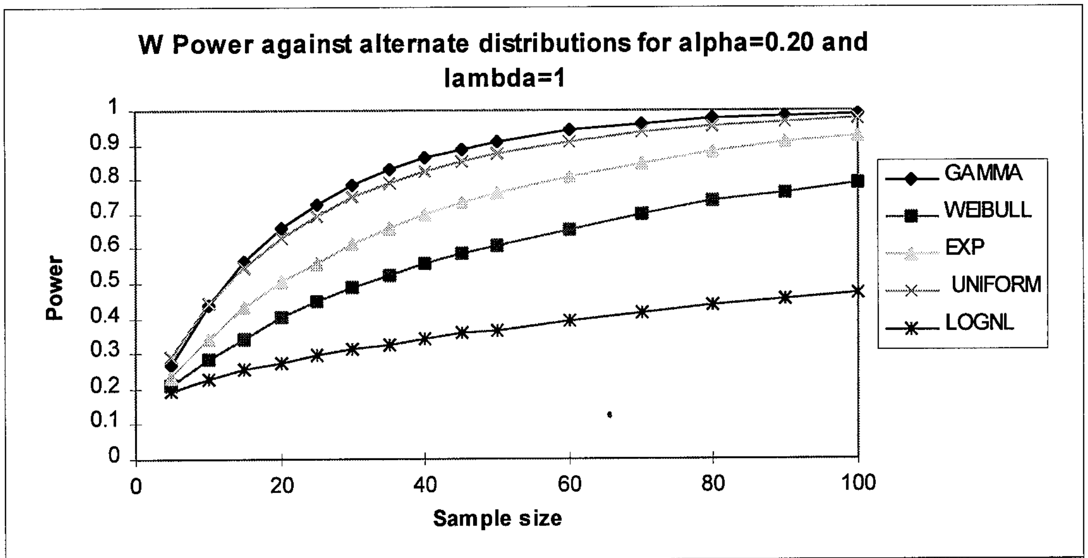
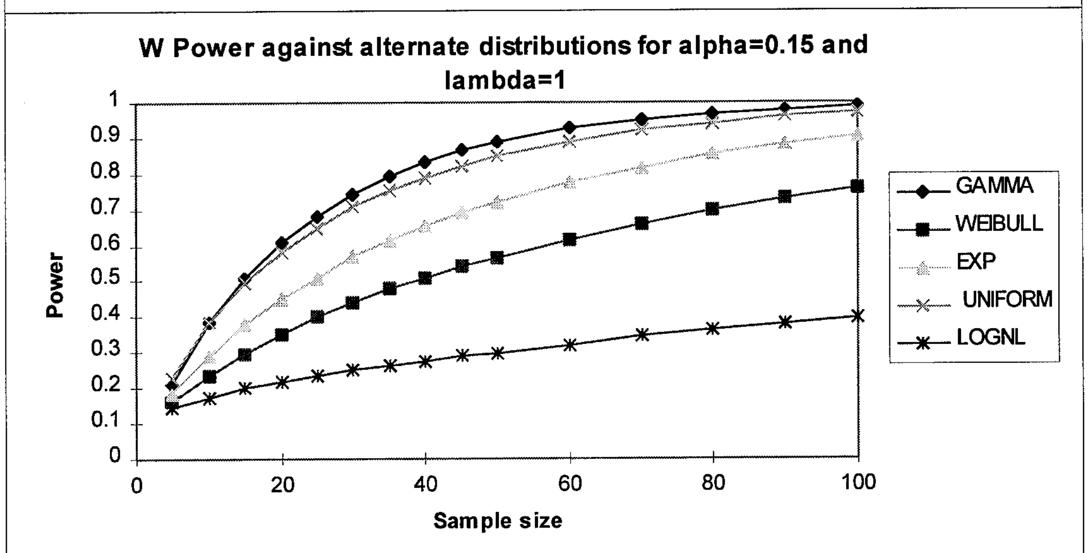


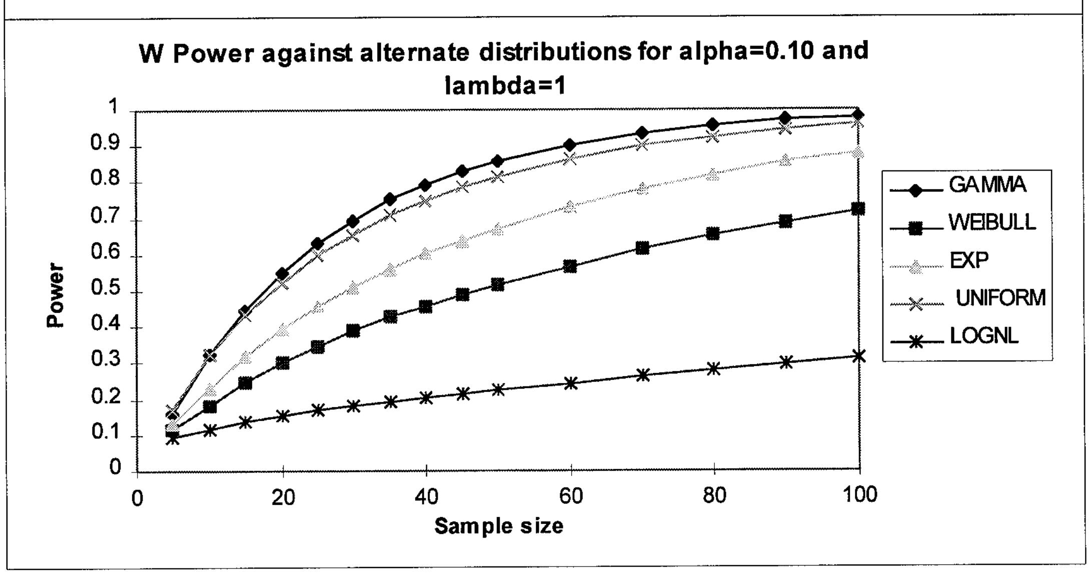
Figure 14 Graphs of V Power



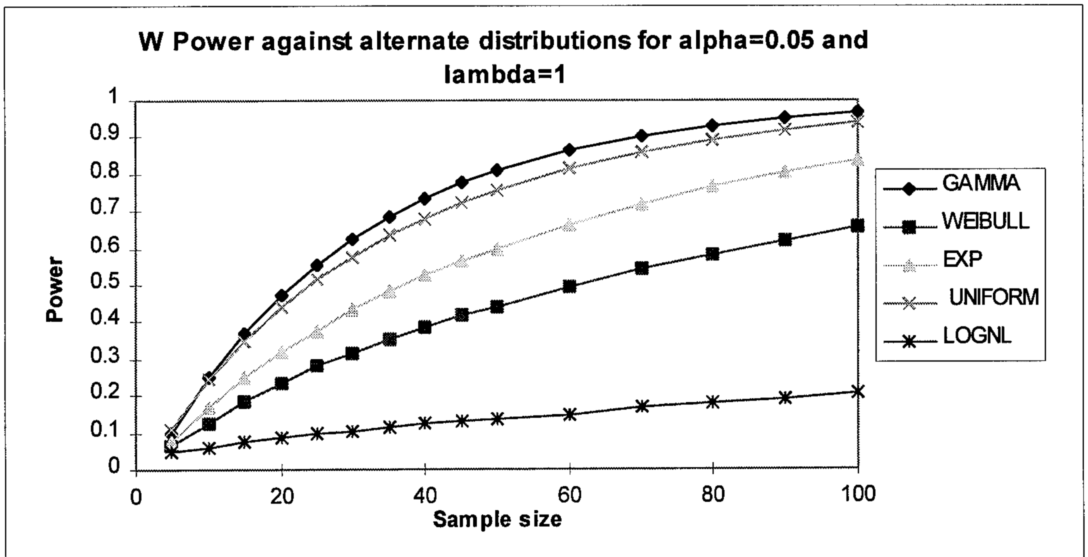
W Power against alternate distributions for alpha=0.20 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

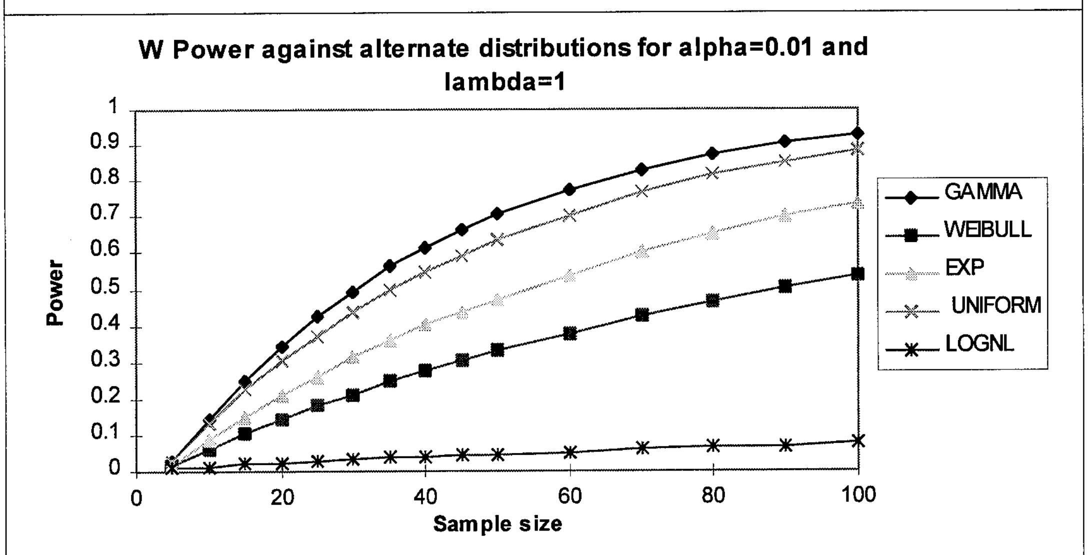


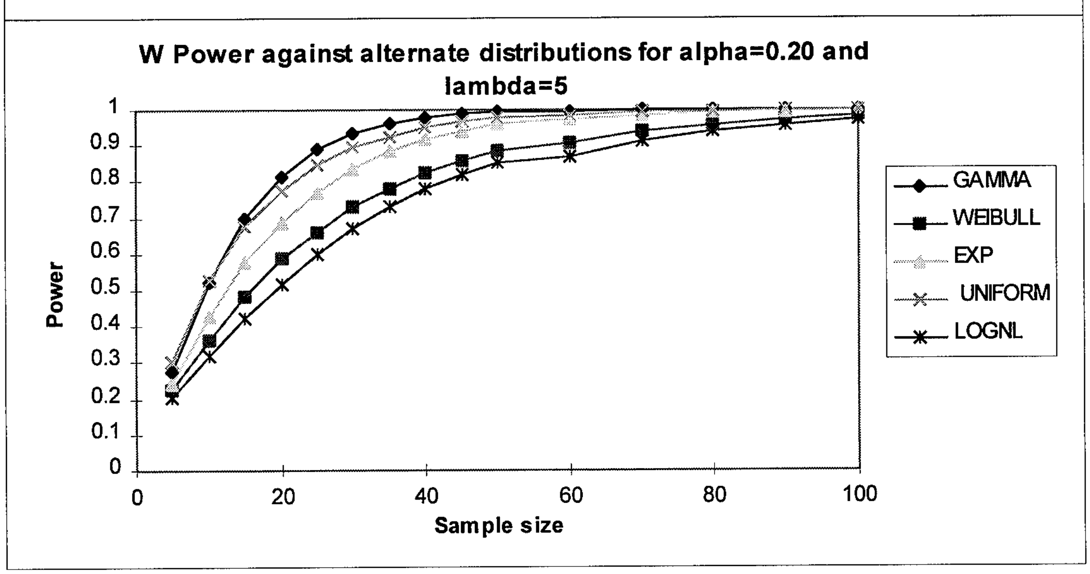
W Power against alternate distributions for alpha=0.15 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

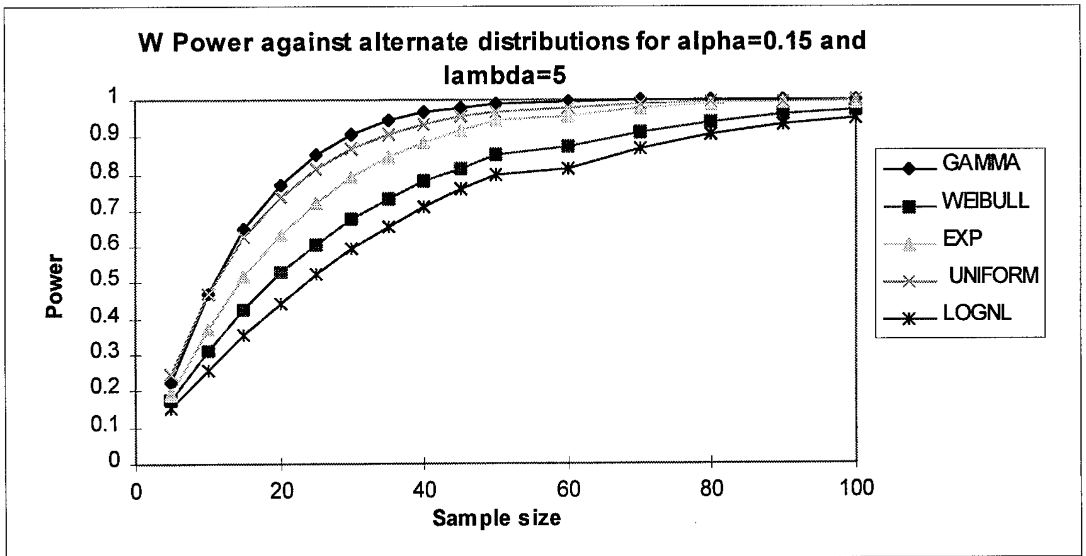


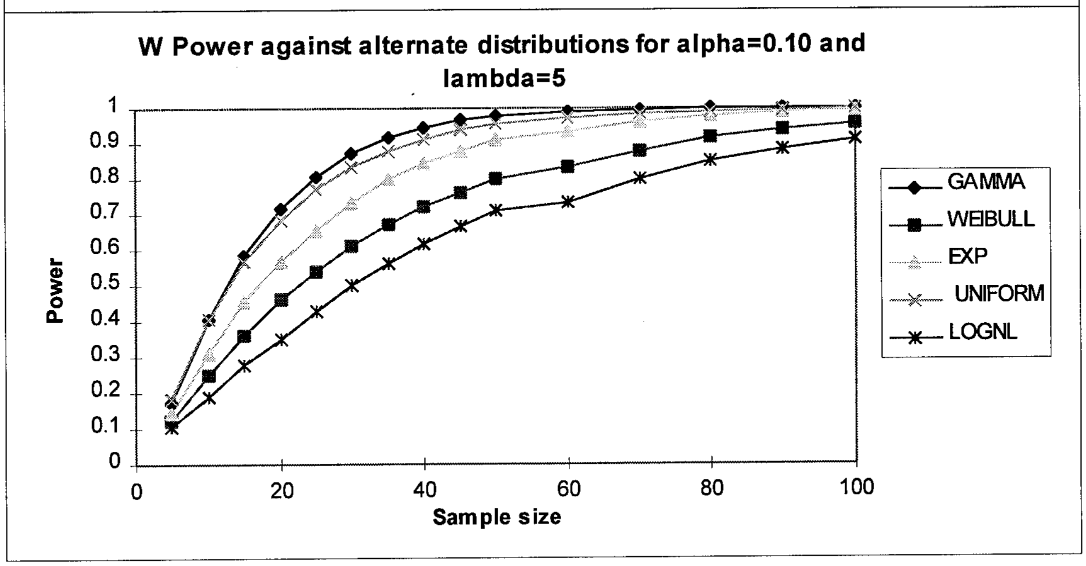
W Power against alternate distributions for alpha=0.10 and lambda=1
Power
Sample size
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


W Power against alternate distributions for alpha=0.05 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


W Power against alternate distributions for alpha=0.01 and lambda=1
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


W Power against alternate distributions for alpha=0.20 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


W Power against alternate distributions for alpha=0.15 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL


W Power against alternate distributions for alpha=0.10 and lambda=5
Power
Sample size
GAMMA
WEIBULL
EXP
UNIFORM
LOGNL

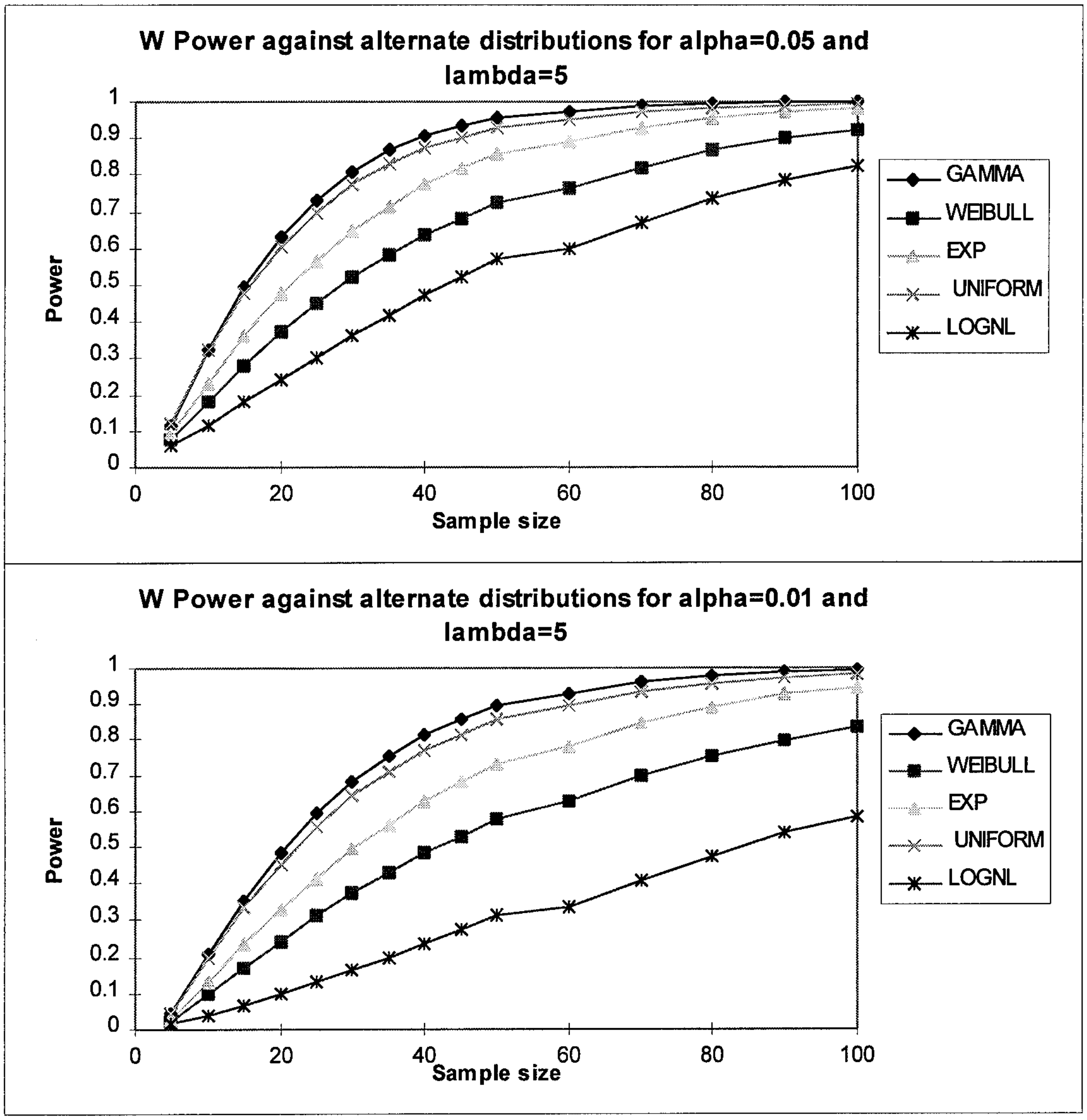
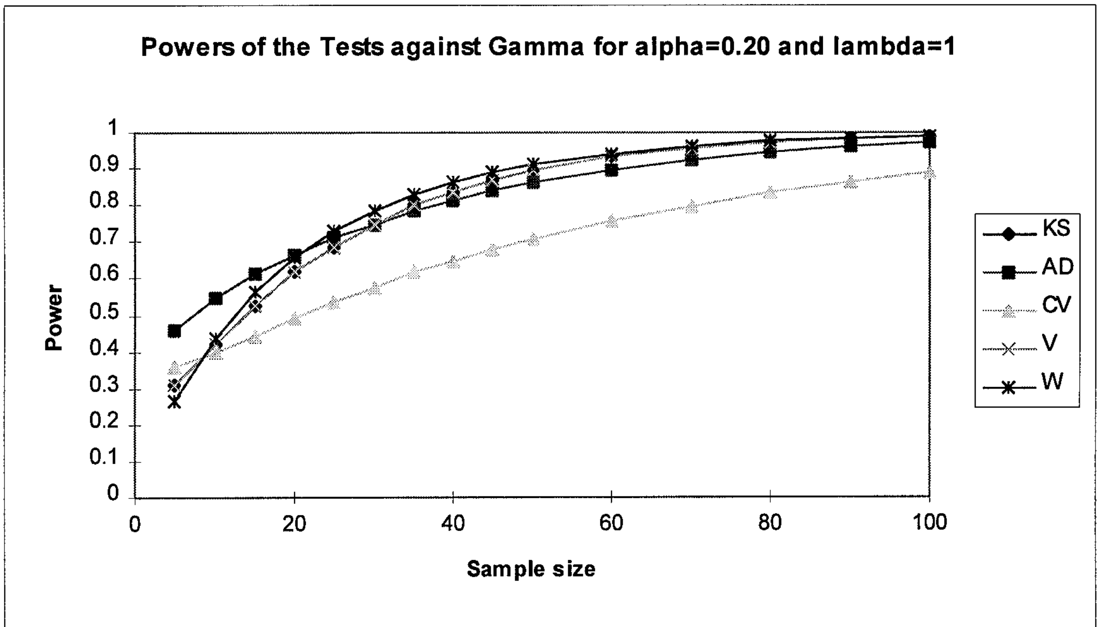
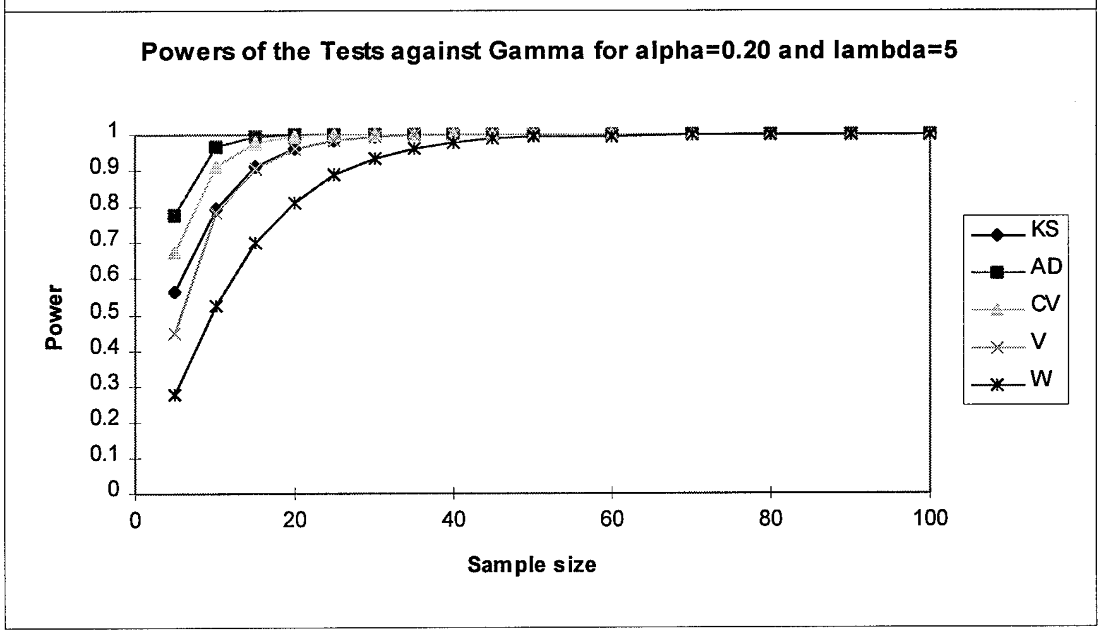
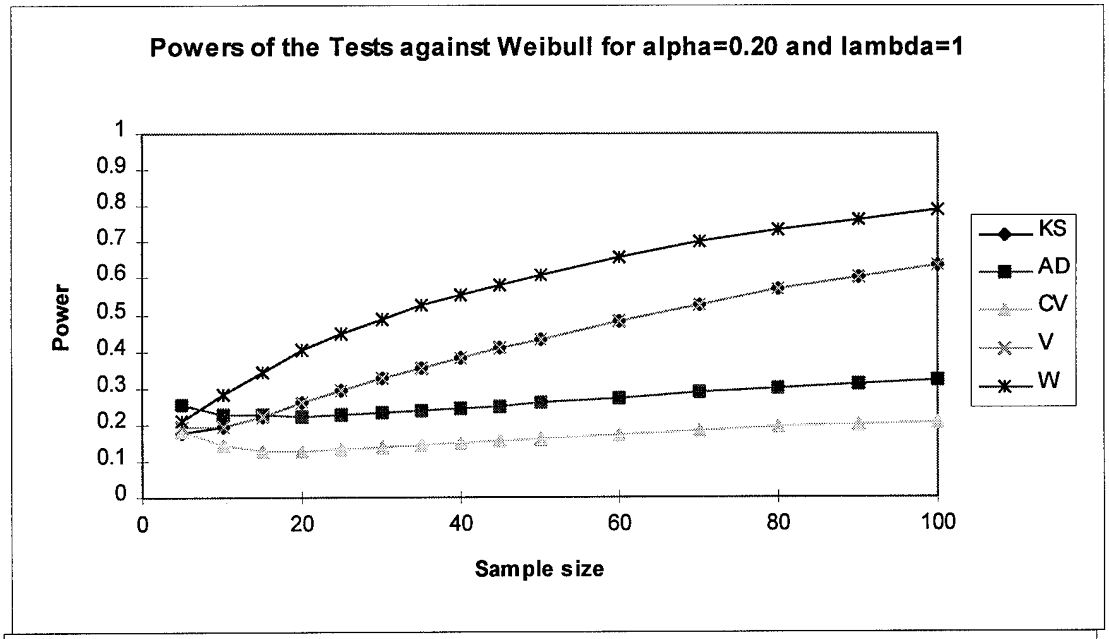
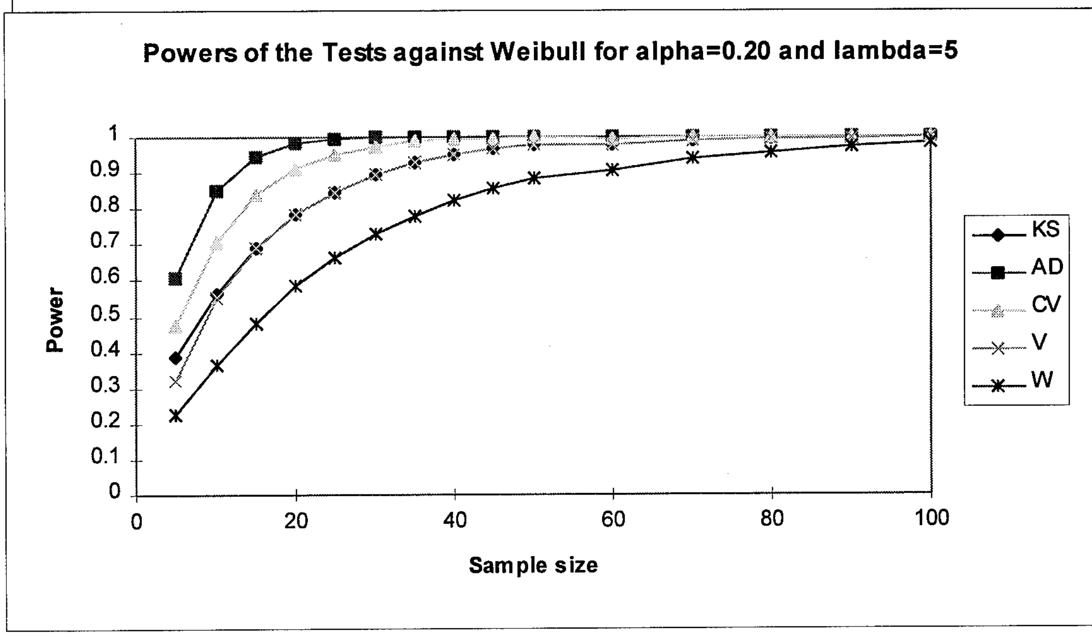


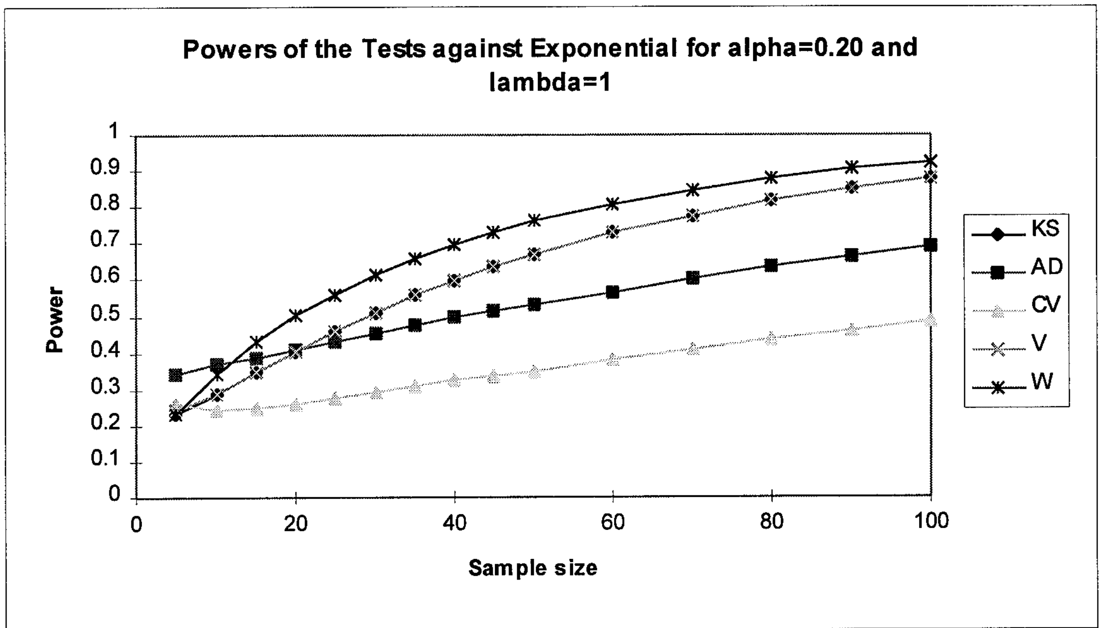
Figure 15 Graphs of W Power

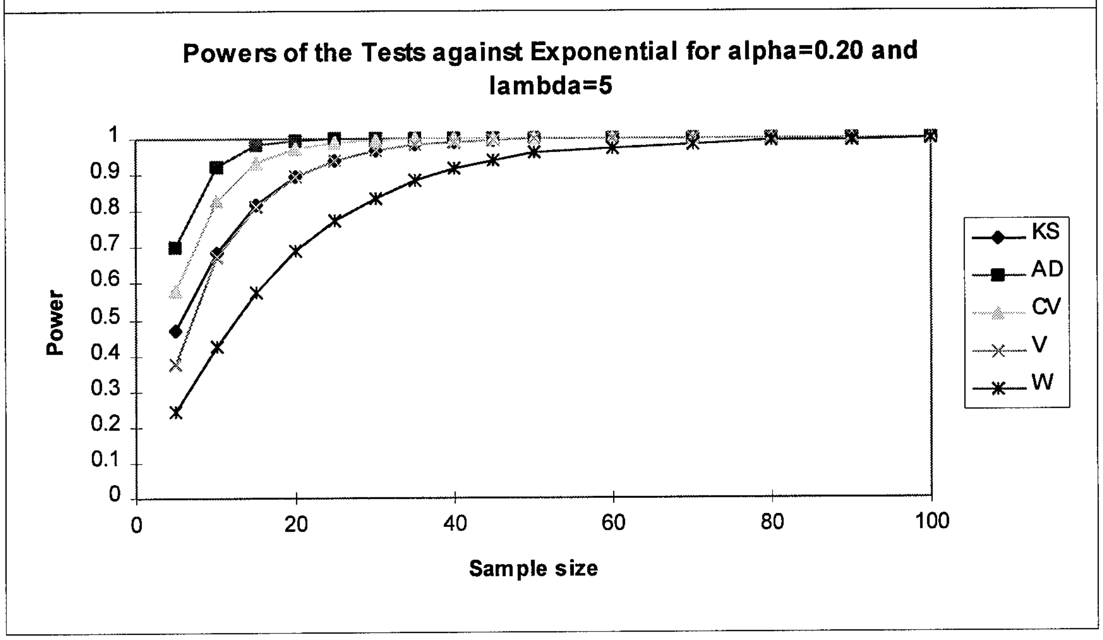

Powers of the Tests against Gamma for alpha=0.20 and lambda=1
Power
Sample size
KS
AD
CV
V
W

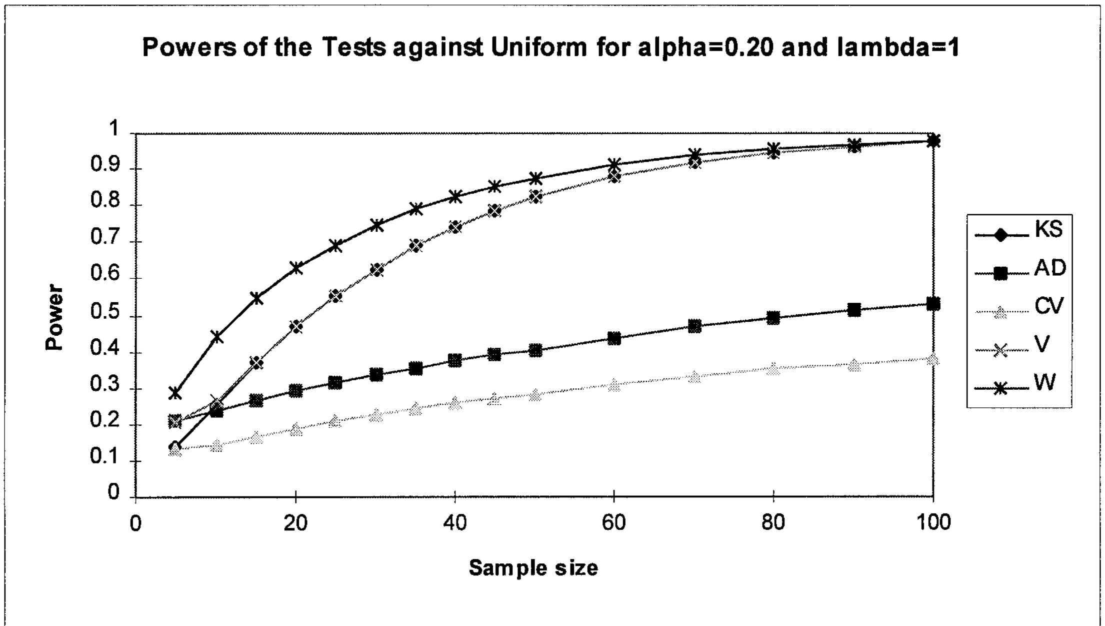

Powers of the Tests against Gamma for alpha=0.20 and lambda=5
Power
Sample size
KS
AD
CV
V
W


Powers of the Tests against Weibull for alpha=0.20 and lambda=1
Power
Sample size
KS
AD
CV
V
W

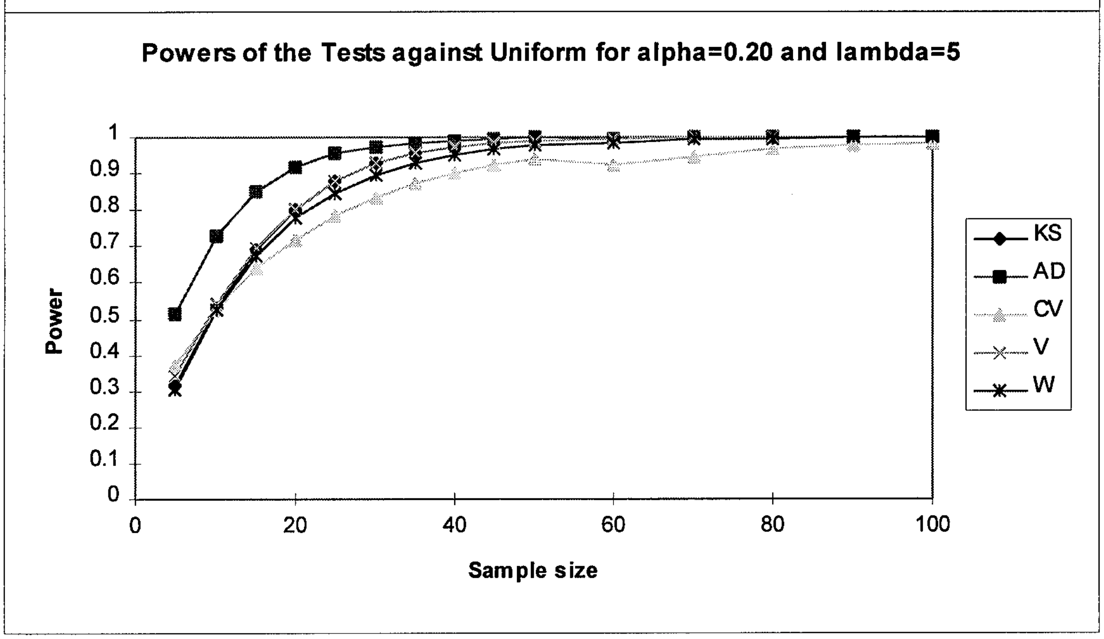

Powers of the Tests against Weibull for alpha=0.20 and lambda=5
Power
Sample size
KS
AD
CV
V
W


Powers of the Tests against Exponential for alpha=0.20 and lambda=1
Power
Sample size
KS
AD
CV
V
W
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
80
100


Powers of the Tests against Exponential for alpha=0.20 and lambda=5
Power
Sample size
KS
AD
CV
V
W
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
80
100



Powers of the Tests against Uniform for alpha=0.20 and lambda=1
Power
Sample size
KS
AD
CV
V
W



Powers of the Tests against Uniform for alpha=0.20 and lambda=5
Power
Sample size
KS
AD
CV
V
W

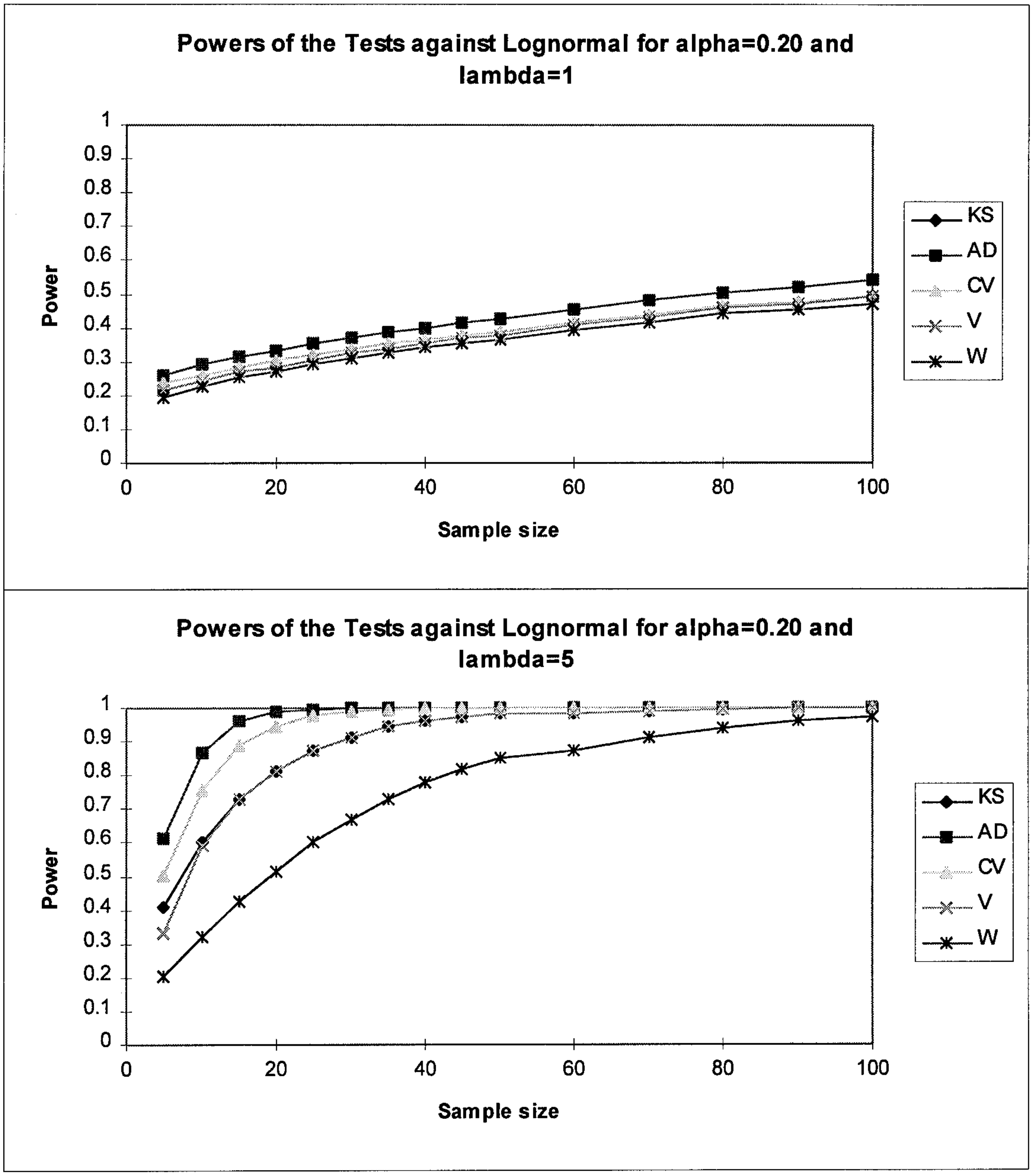
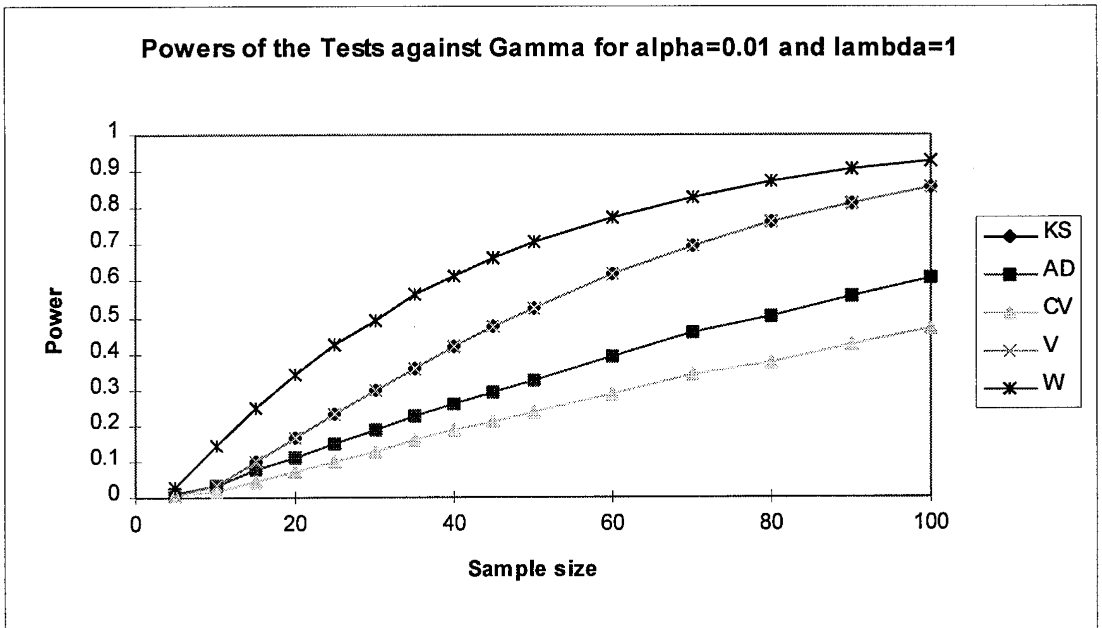
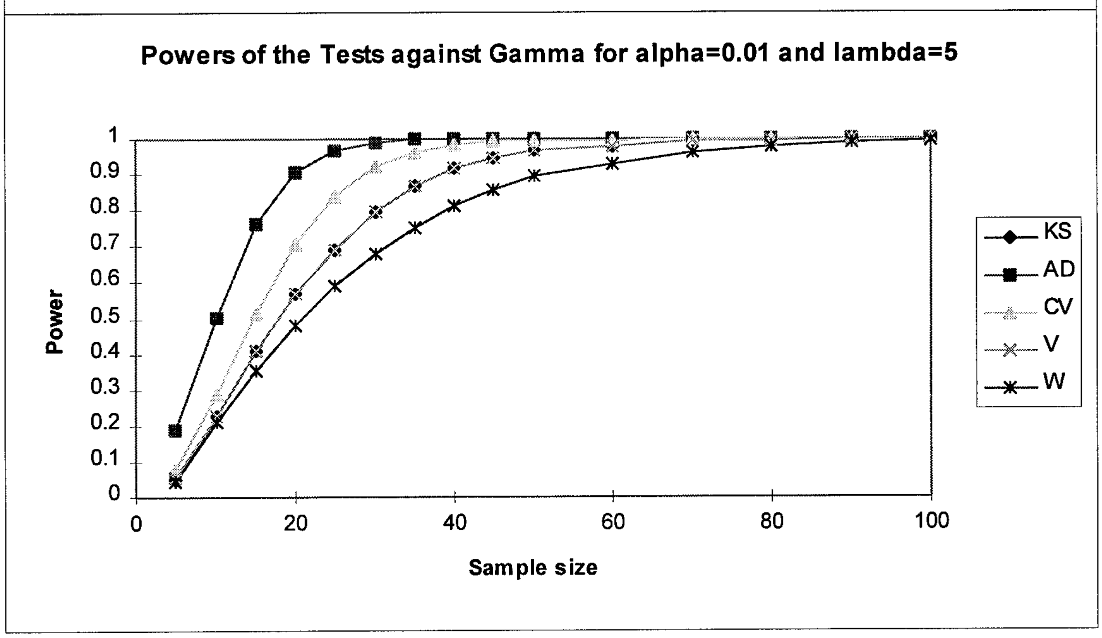


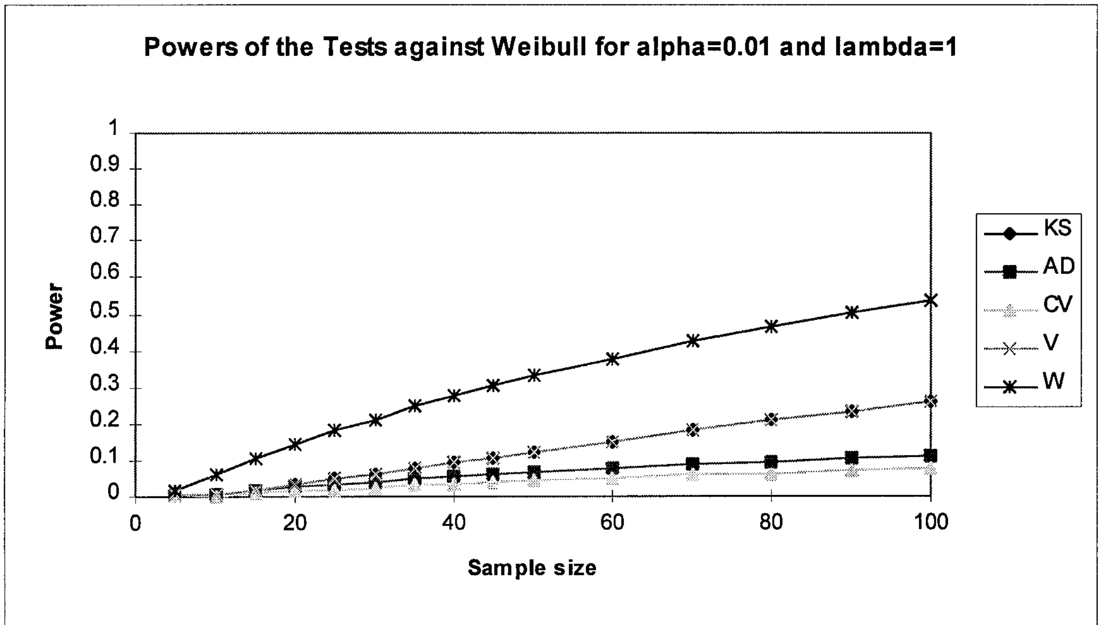
Figure 16 Graphs of the Powers at $\alpha = 0.20$

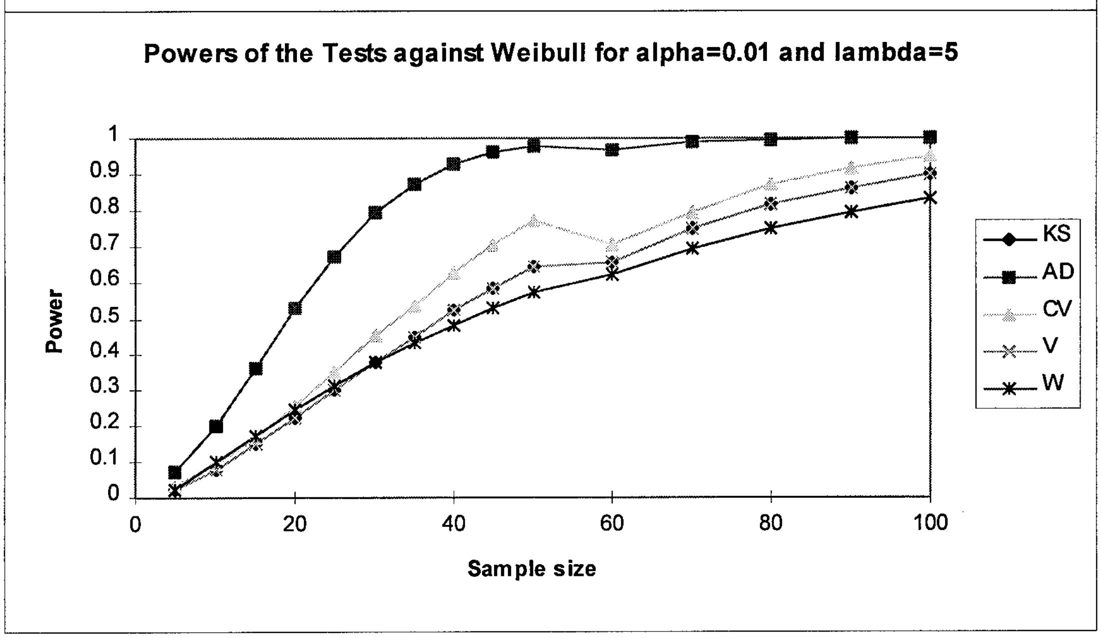


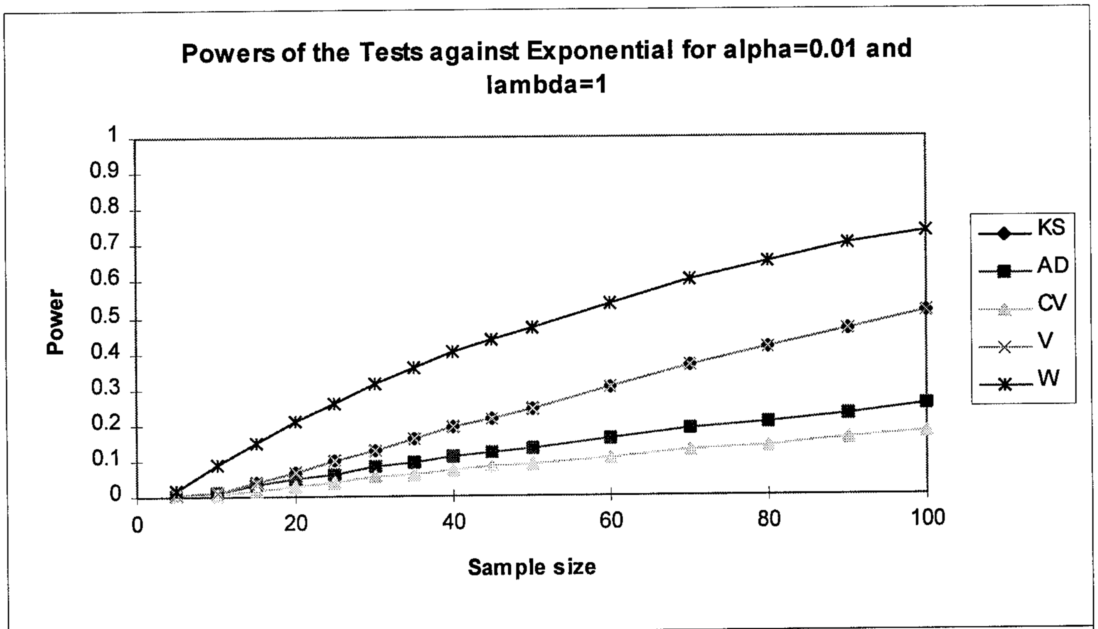
Powers of the Tests against Gamma for alpha=0.01 and lambda=1
Power
Sample size
KS
AD
CV
V
W

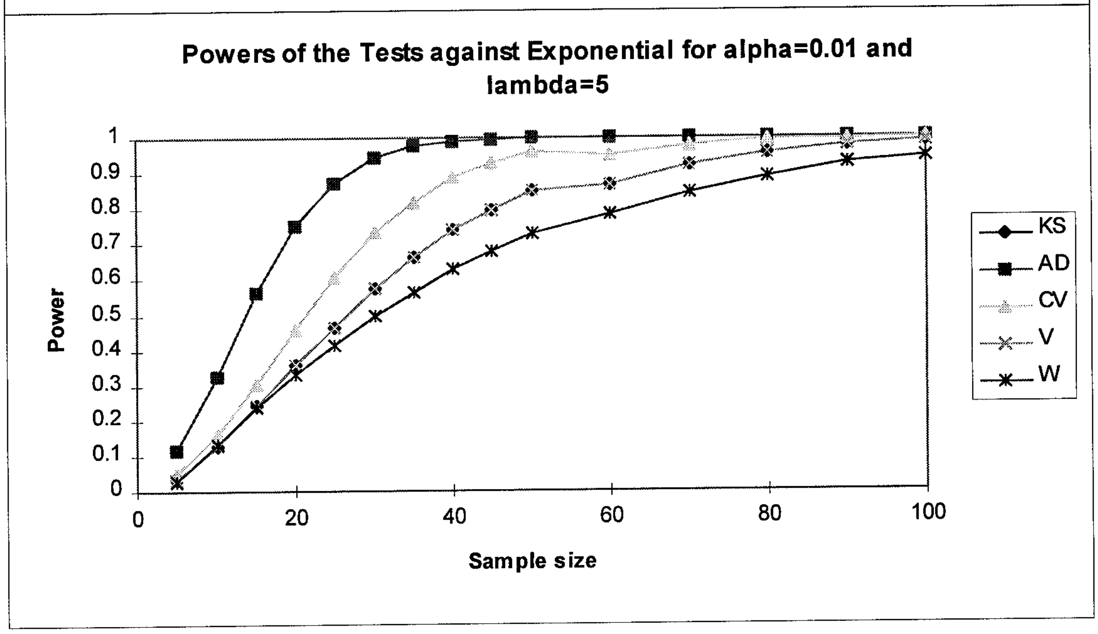


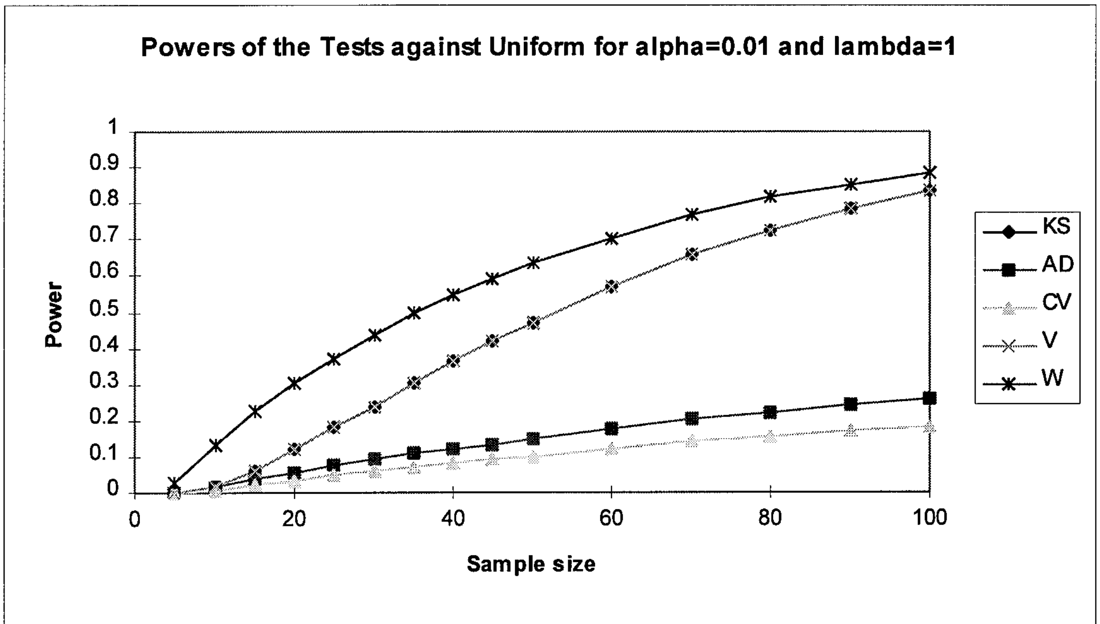
Powers of the Tests against Gamma for alpha=0.01 and lambda=5
Power
Sample size
KS
AD
CV
V
W

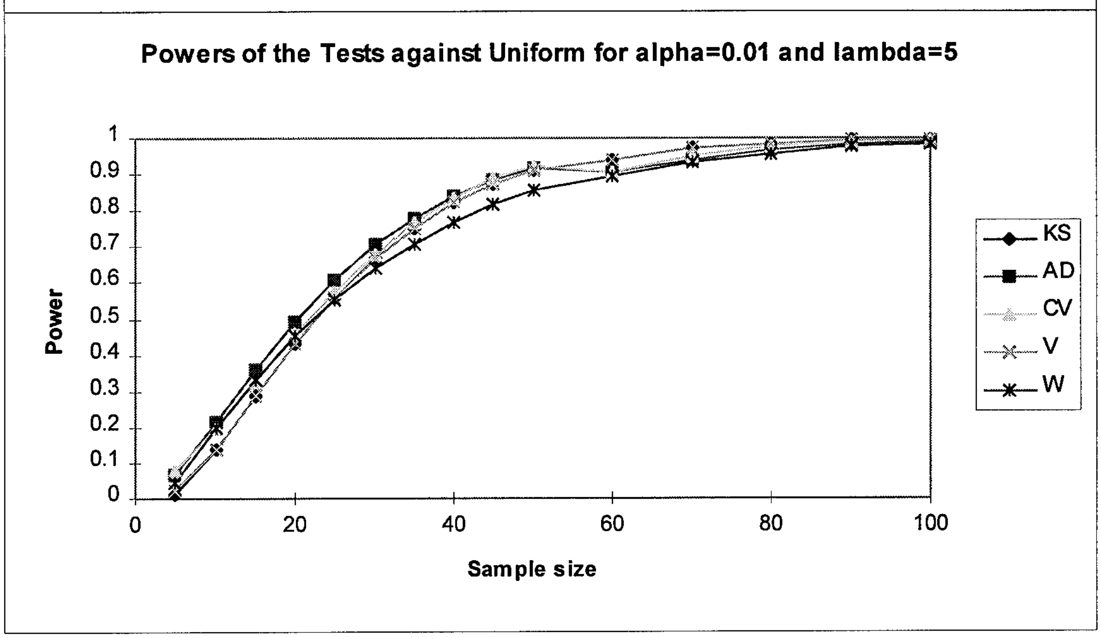

Powers of the Tests against Weibull for alpha=0.01 and lambda=1
Power
Sample size
KS
AD
CV
V
W
0
20
40
60
80
100
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1

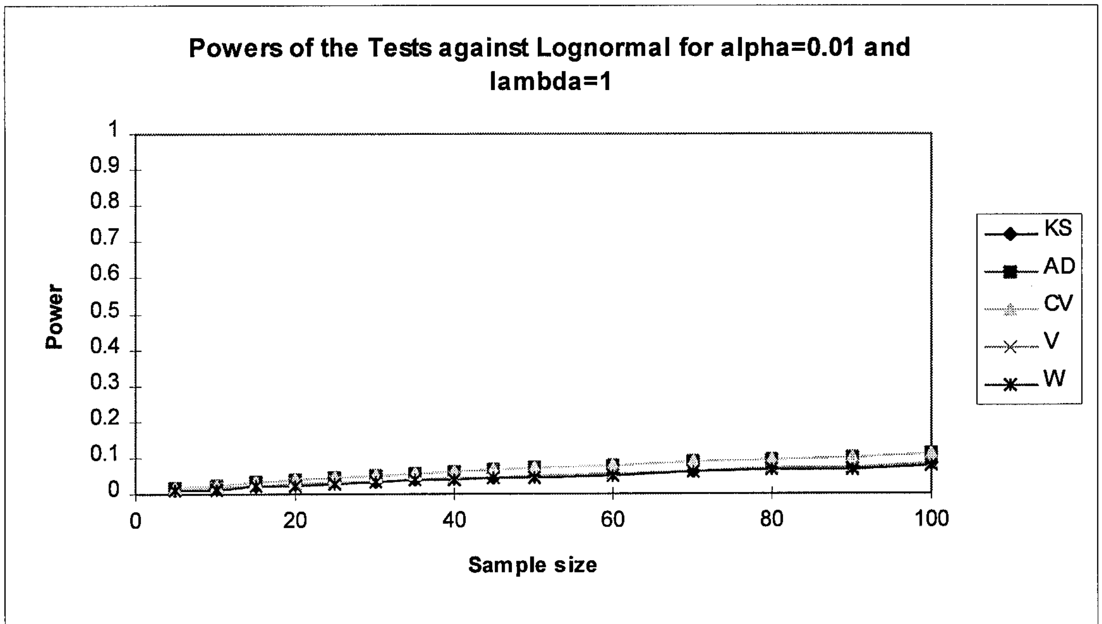

Powers of the Tests against Weibull for alpha=0.01 and lambda=5
Power
Sample size
KS
AD
CV
V
W
0
20
40
60
80
100
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


Powers of the Tests against Exponential for alpha=0.01 and lambda=1
Power
Sample size
KS
AD
CV
V
W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100


Powers of the Tests against Exponential for alpha=0.01 and lambda=5
Power
Sample size
KS
AD
CV
V
W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100


Powers of the Tests against Uniform for alpha=0.01 and lambda=1
Power
Sample size
KS
AD
CV
V
W


Powers of the Tests against Uniform for alpha=0.01 and lambda=5
Power
Sample size
KS
AD
CV
V
W



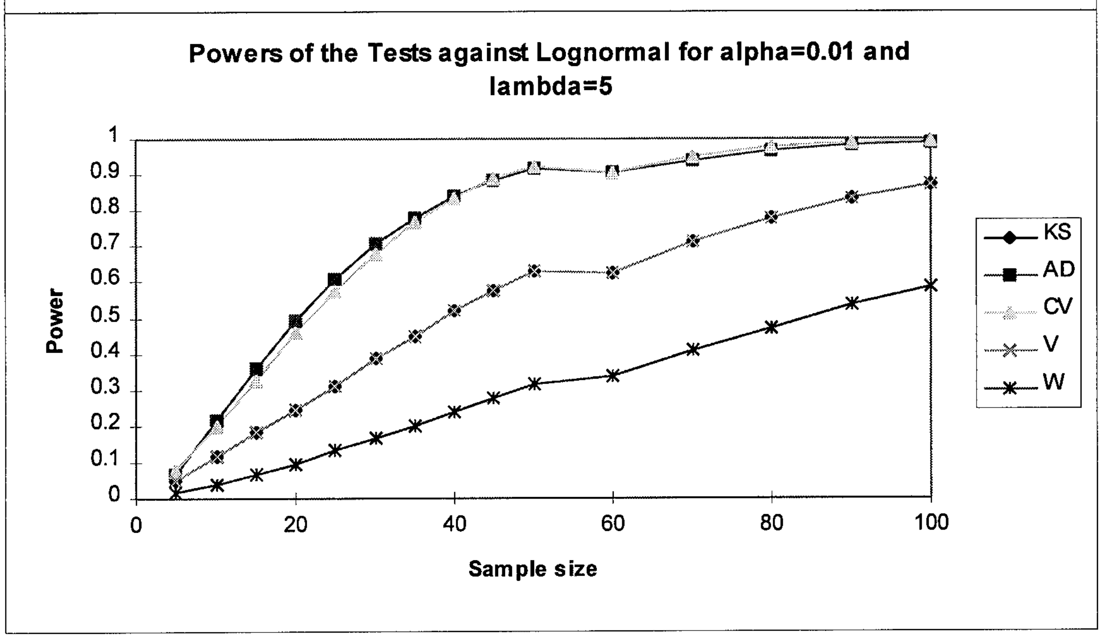
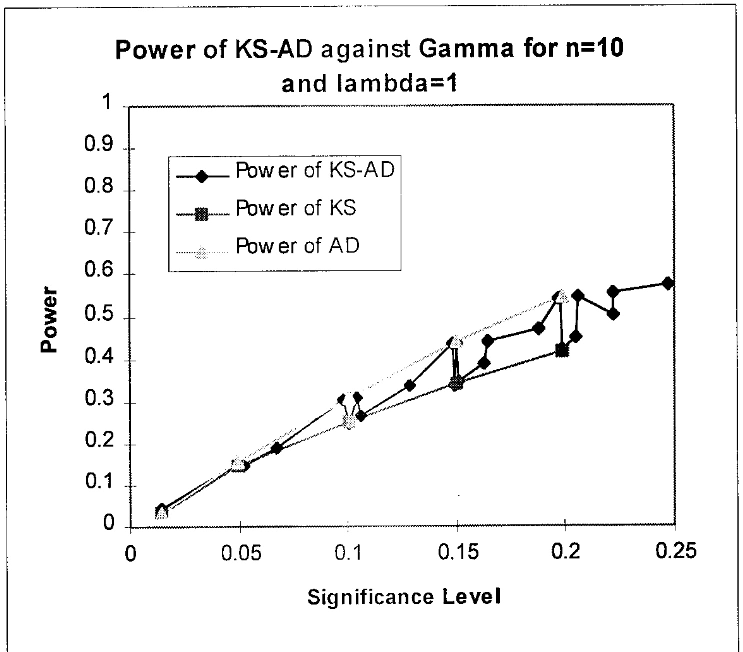
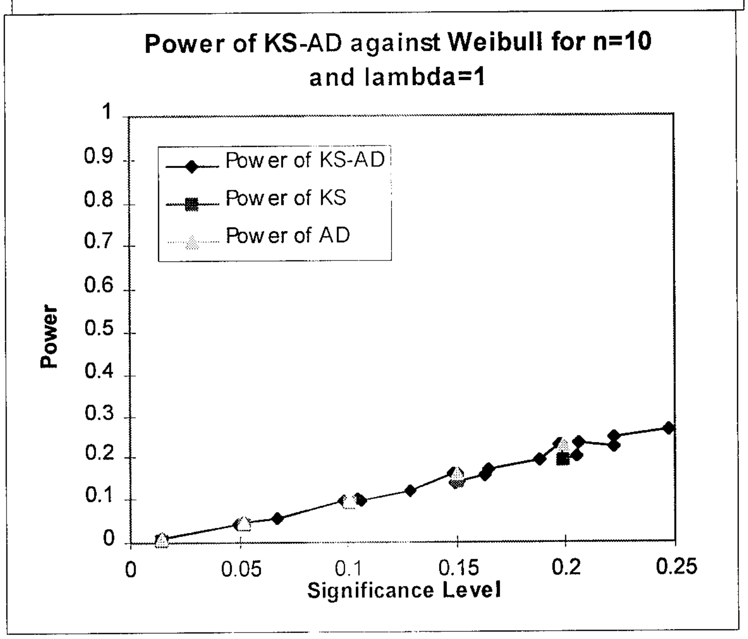
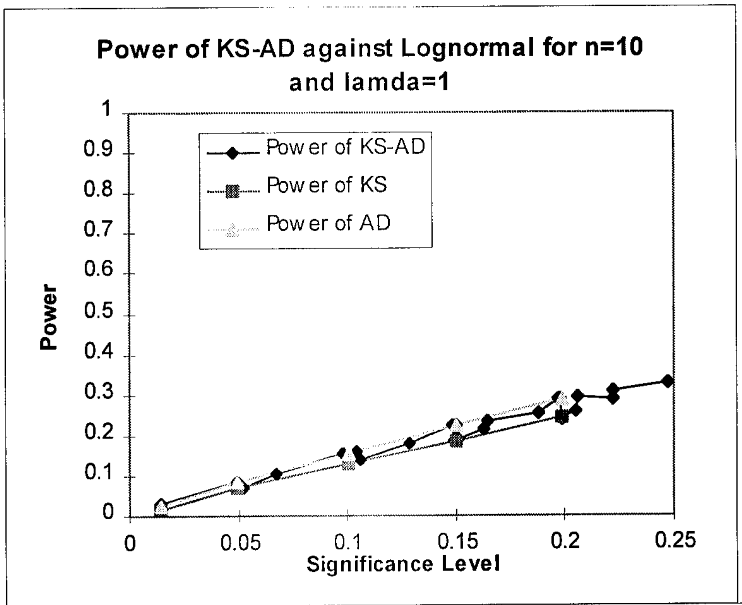
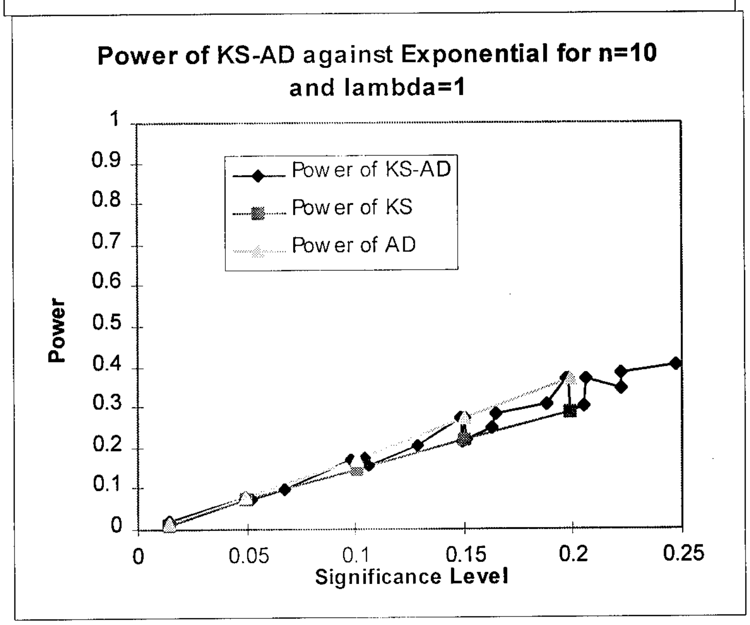


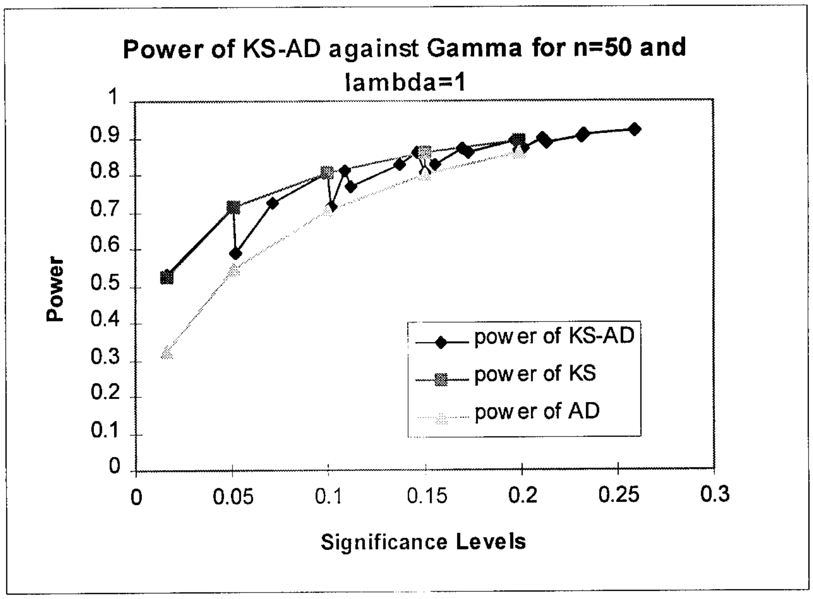
Figure 17 Graphs of the Powers at $\alpha = 0.01$

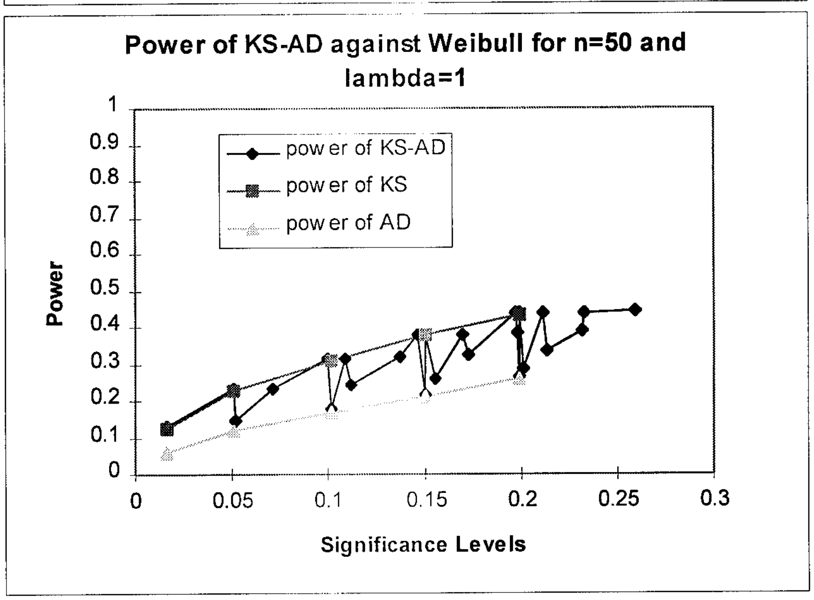

Power of KS-AD against Gamma for n=10 and lambda=1
Power
Significance Level
Power of KS-AD
Power of KS
Power of AD
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.05
0.1
0.15
0.2
0.25

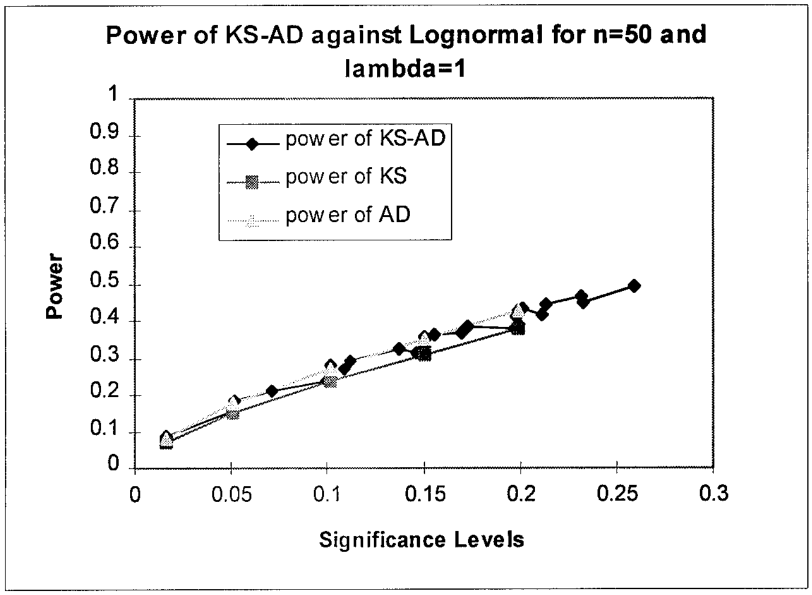

Power of KS-AD against Weibull for n=10 and lambda=1
Power
Significance Level
Power of KS-AD
Power of KS
Power of AD
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.05
0.1
0.15
0.2
0.25


Power of KS-AD against Lognormal for n=10 and lamda=1
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Level
Pow er of KS-AD
Pow er of KS
Pow er of AD

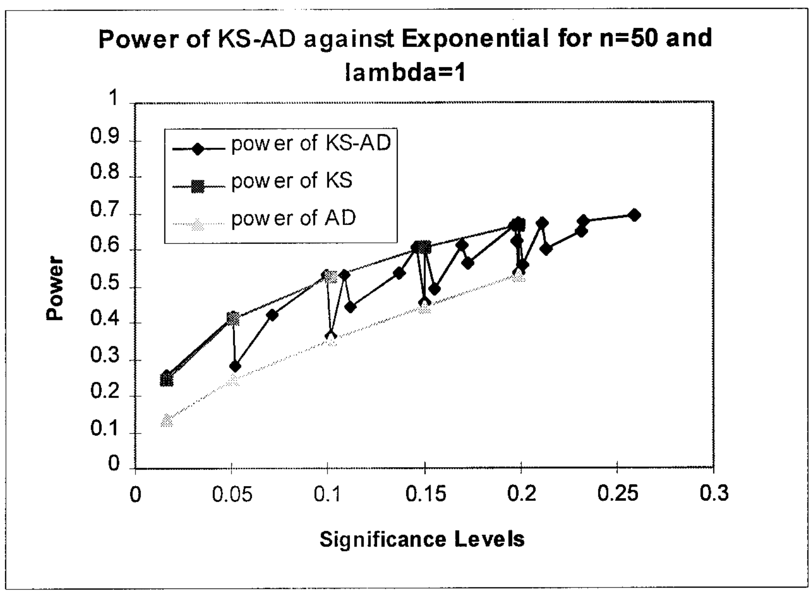

Power of KS-AD against Exponential for n=10 and lambda=1
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Level
Pow er of KS-AD
Pow er of KS
Pow er of AD


Power of KS-AD against Gamma for n=50 and lambda=1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Power
power of KS-AD
power of KS
power of AD
0
0.05
0.1
0.15
0.2
0.25
0.3
Significance Levels

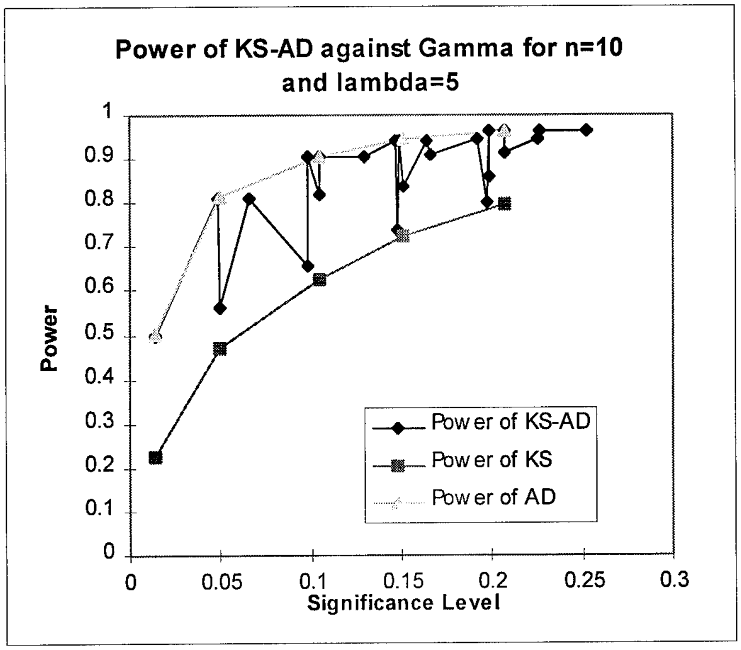

Power of KS-AD against Weibull for n=50 and lambda=1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Power
power of KS-AD
power of KS
power of AD
0
0.05
0.1
0.15
0.2
0.25
0.3
Significance Levels



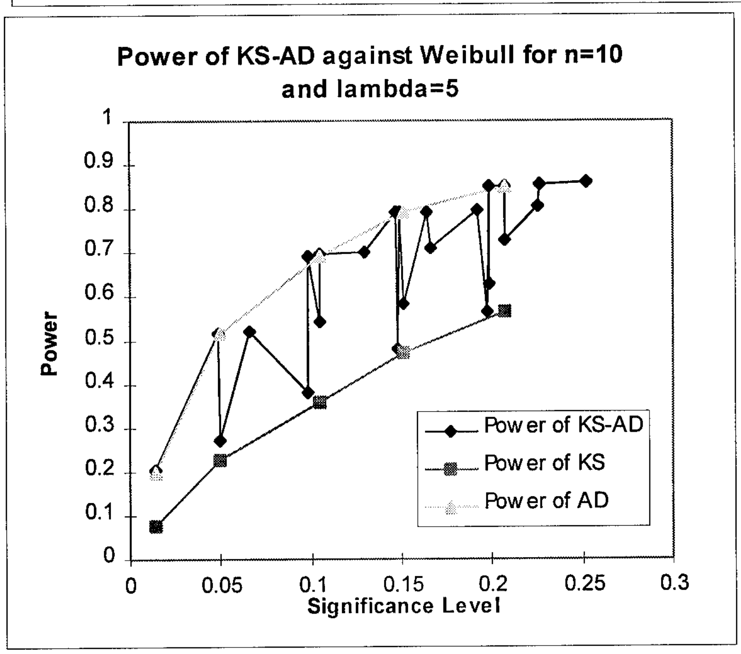
Power of KS-AD against Lognormal for n=50 and lambda=1
power of KS-AD
power of KS
power of AD
Power
Significance Levels
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25
0.3



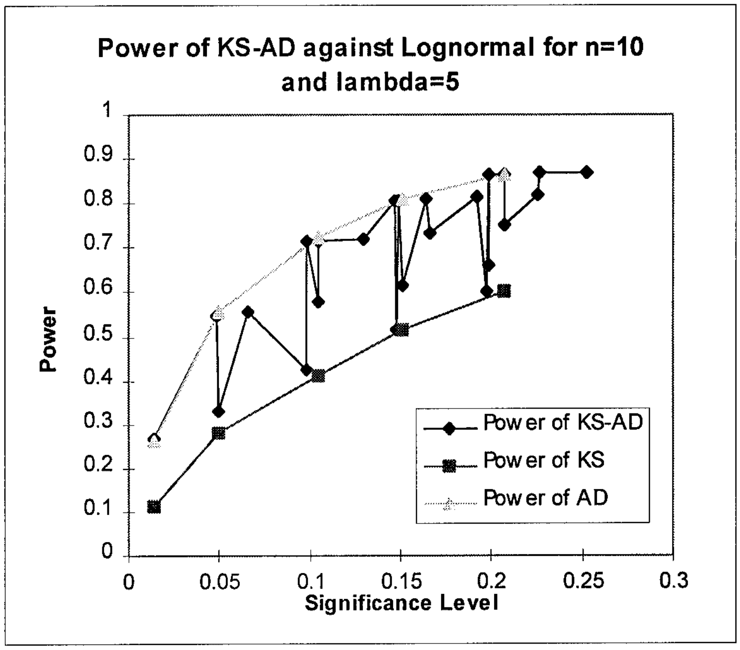
Power of KS-AD against Exponential for n=50 and lambda=1
power of KS-AD
power of KS
power of AD
Power
Significance Levels
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25
0.3

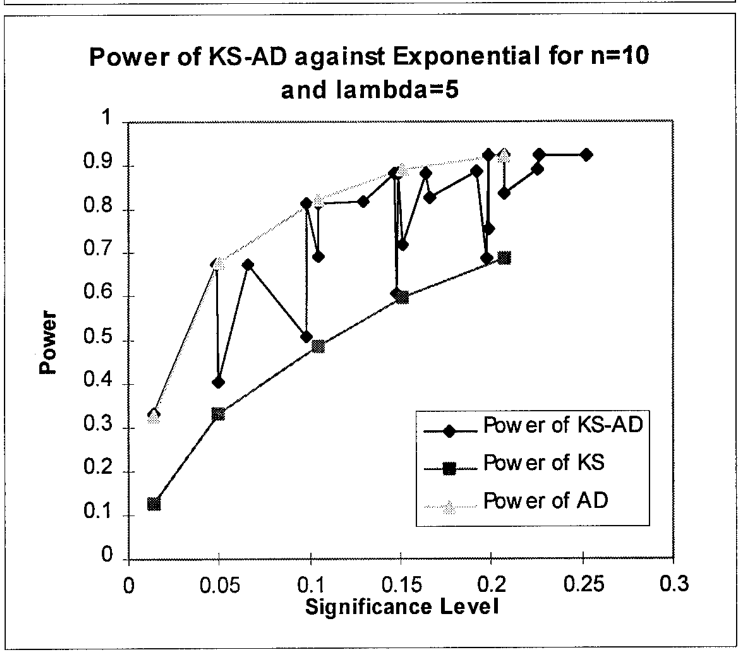


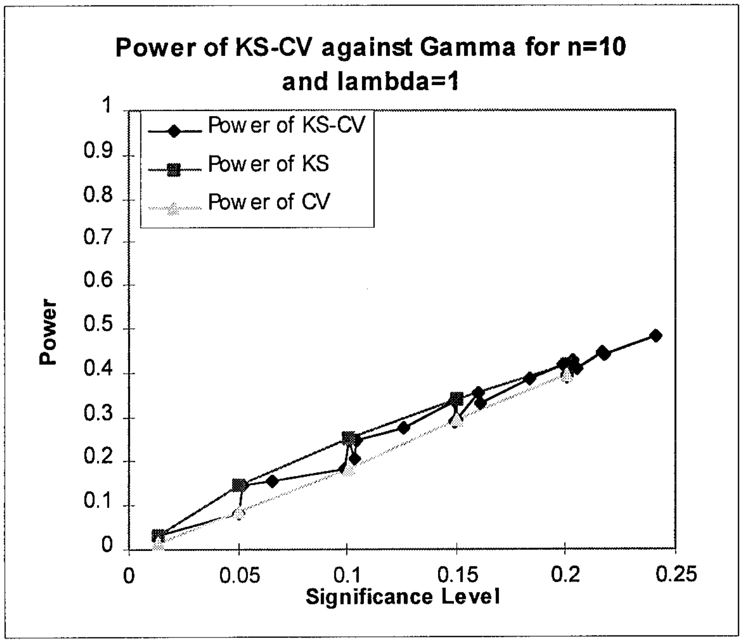
Power of KS-AD against Gamma for n=10 and lambda=5
Power
Significance Level
Power of KS-AD
Power of KS
Power of AD

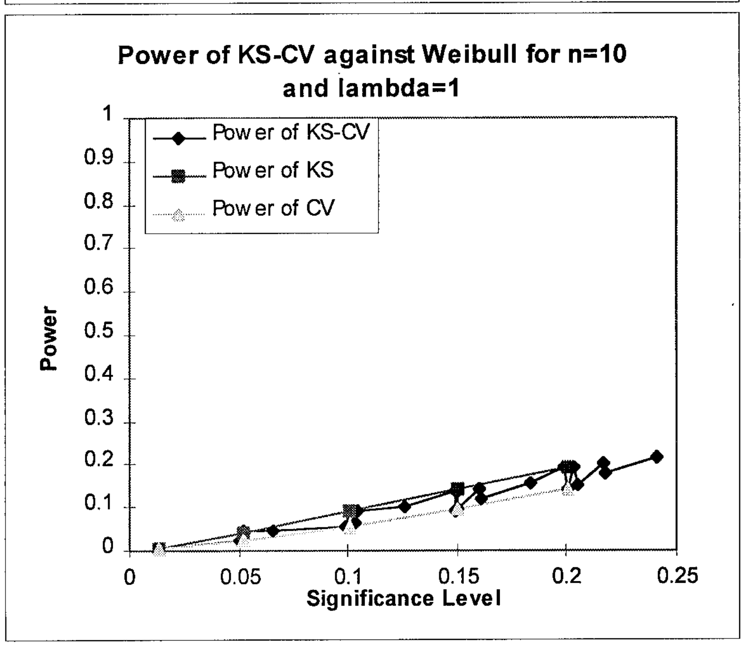


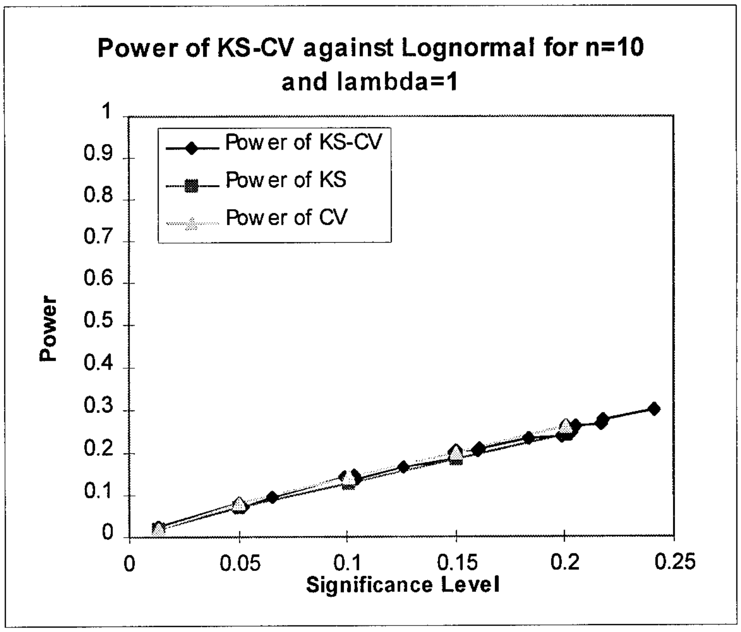
Power of KS-AD against Weibull for n=10 and lambda=5
Power
Significance Level
Power of KS-AD
Power of KS
Power of AD

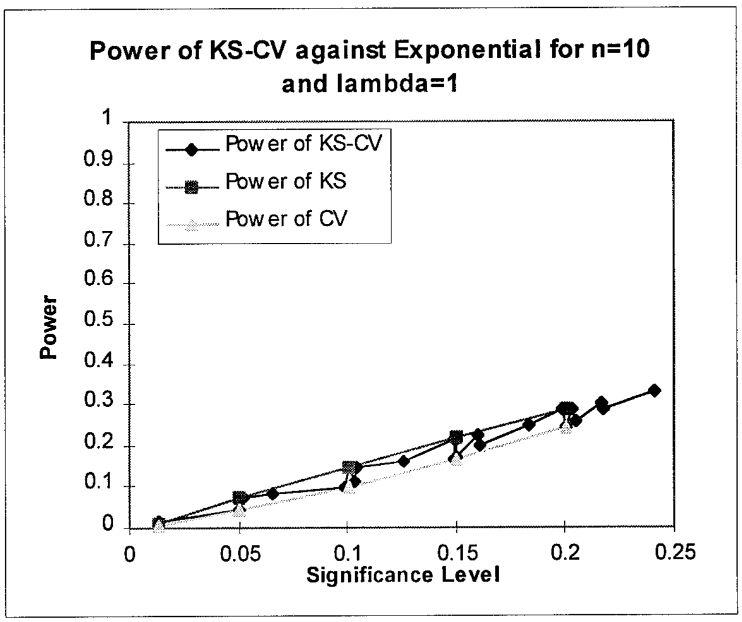

Power of KS-AD against Lognormal for n=10 and lambda=5
Power
Significance Level
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3
Pow er of KS-AD
Pow er of KS
Pow er of AD

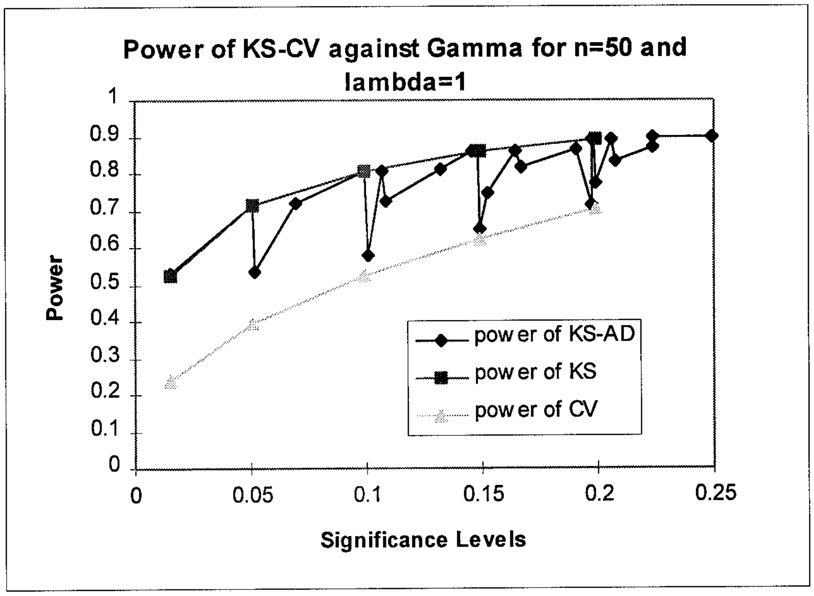

Power of KS-AD against Exponential for n=10 and lambda=5
Power
Significance Level
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3
Pow er of KS-AD
Pow er of KS
Pow er of AD


Power of KS-CV against Gamma for n=10
and lambda=1
Power of KS-CV
Power of KS
Power of CV
Power
Significance Level
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25


Power of KS-CV against Weibull for n=10
and lambda=1
Power of KS-CV
Power of KS
Power of CV
Power
Significance Level
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25


Power of KS-CV against Lognormal for n=10 and lambda=1
Power of KS-CV
Power of KS
Power of CV
Power
Significance Level
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.1
0.15
0.2
0.25


Power of KS-CV against Exponential for n=10 and lambda=1
Power of KS-CV
Power of KS
Power of CV
Power
Significance Level
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.1
0.15
0.2
0.25



Power of KS-CV against Gamma for n=50 and lambda=1
Power
Significance Levels
power of KS-AD
power of KS
power of CV
0
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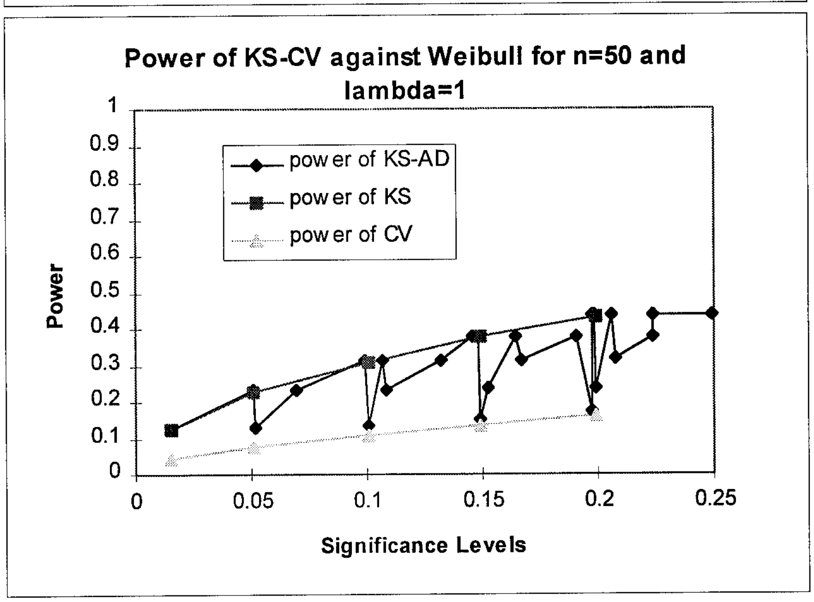
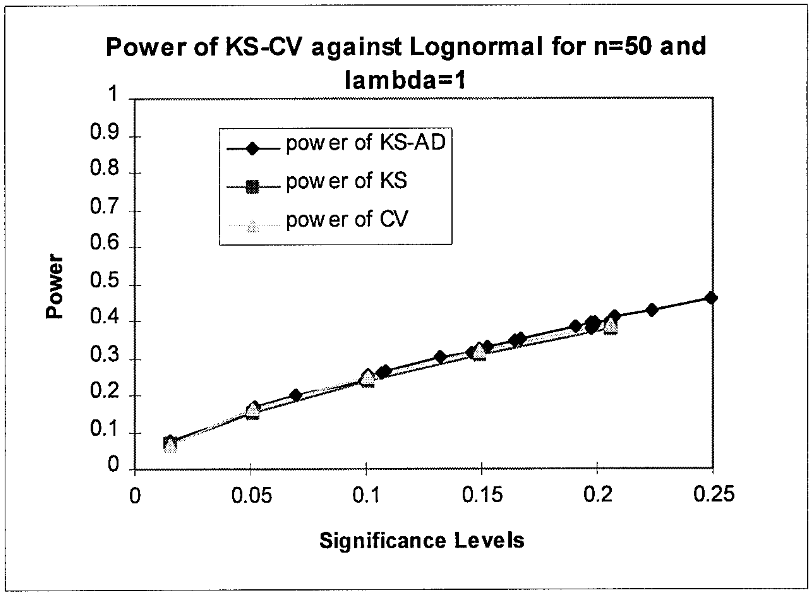
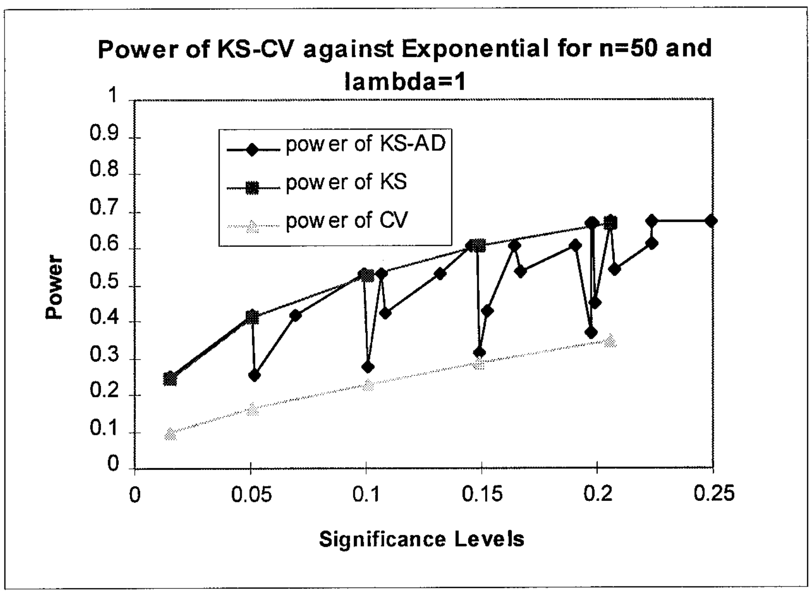
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25



Power of KS-CV against Weibull for n=50 and lambda=1
Power
Significance Levels
power of KS-AD
power of KS
power of CV
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25



Power of KS-CV against Lognormal for n=50 and lambda=1
power of KS-AD
power of KS
power of CV
Power
Significance Levels
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25



Power of KS-CV against Exponential for n=50 and lambda=1
power of KS-AD
power of KS
power of CV
Power
Significance Levels
0
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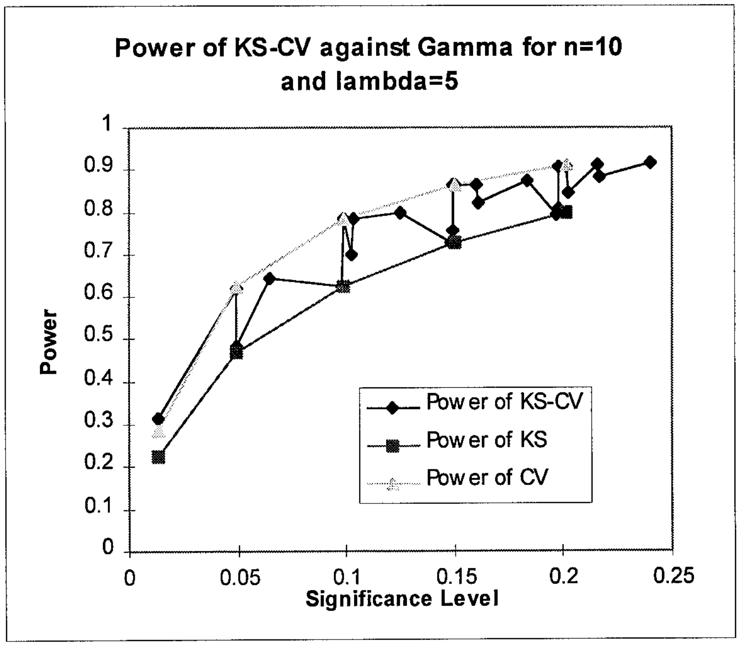
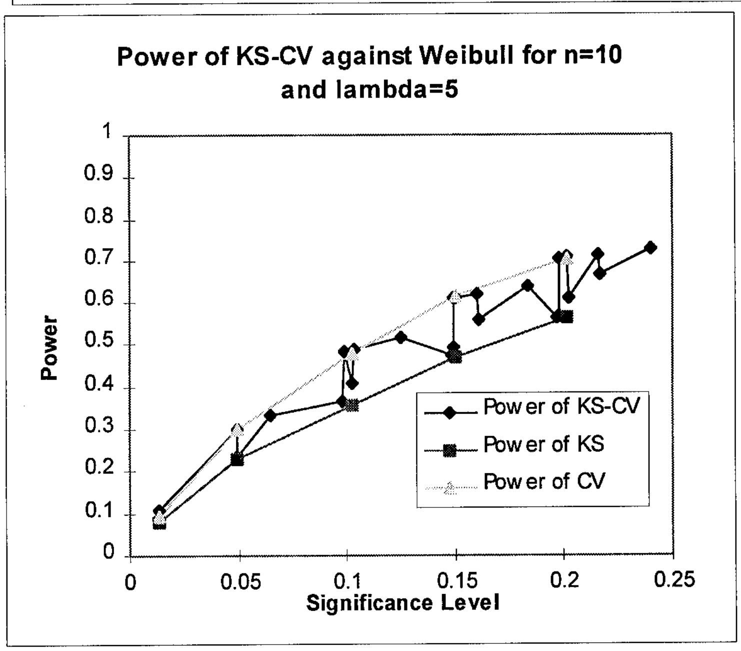
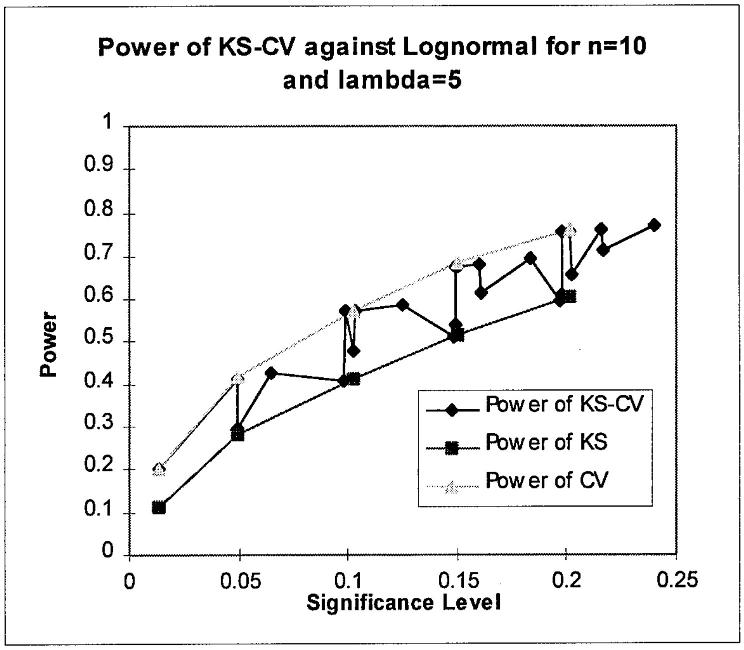
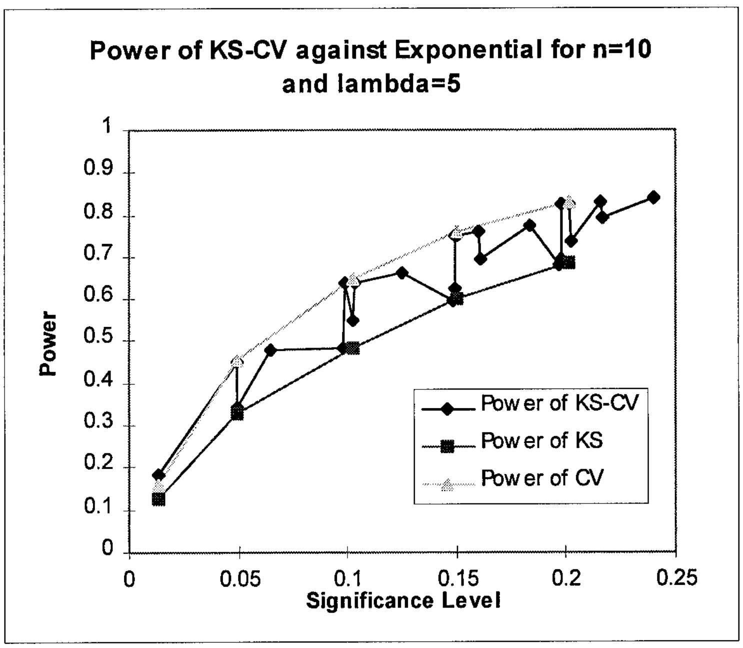
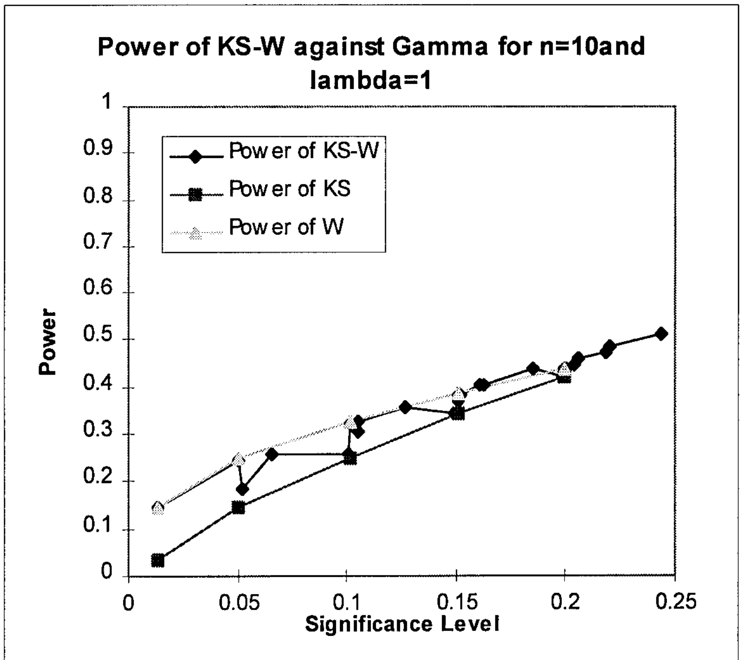
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25

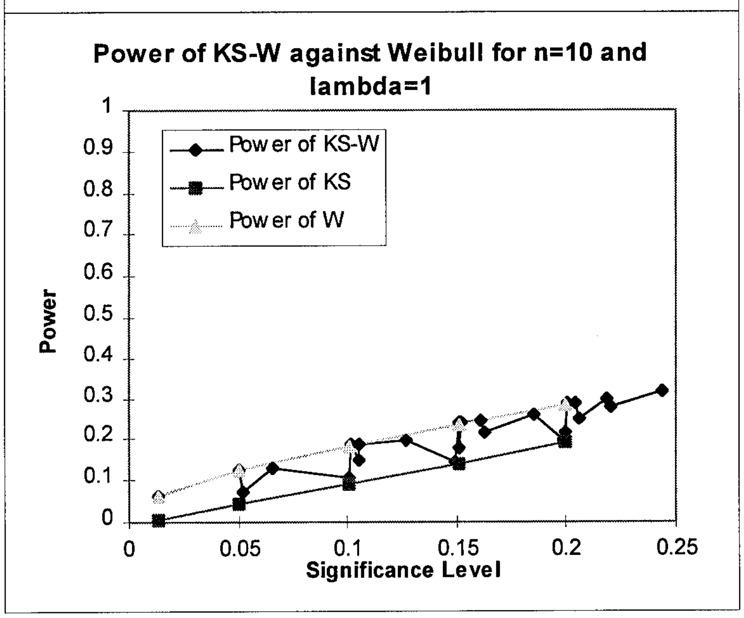

Power of KS-CV against Gamma for n=10 and lambda=5
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Power
0
0.05
0.1
0.15
0.2
0.25
Significance Level
Power of KS-CV
Power of KS
Power of CV

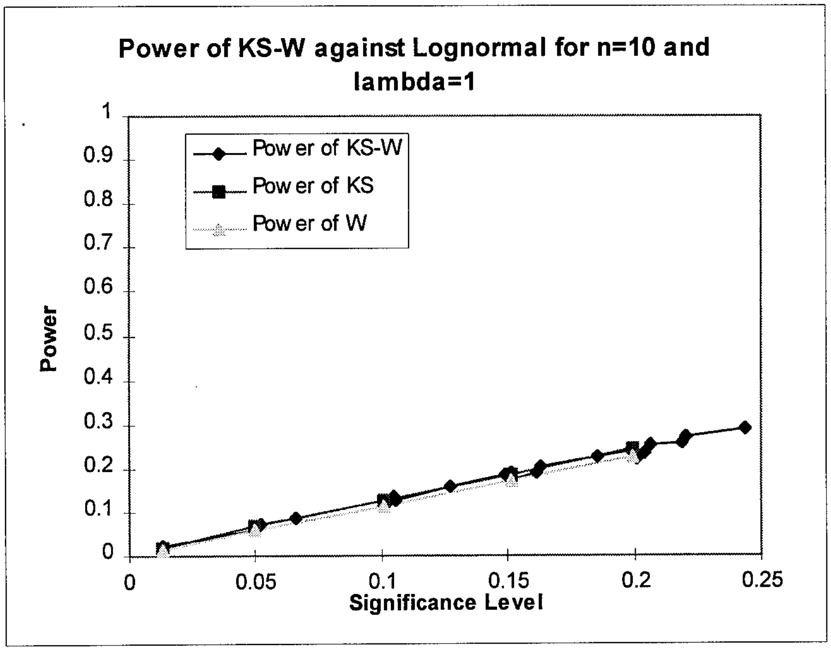

Power of KS-CV against Weibull for n=10 and lambda=5
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Power
0
0.05
0.1
0.15
0.2
0.25
Significance Level
Power of KS-CV
Power of KS
Power of CV


Power of KS-CV against Lognormal for n=10 and lambda=5
Power
Significance Level
Power of KS-CV
Power of KS
Power of CV
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25


Power of KS-CV against Exponential for n=10 and lambda=5
Power
Significance Level
Power of KS-CV
Power of KS
Power of CV
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25


Power of KS-W against Gamma for n=10and lambda=1
Power of KS-W
Power of KS
Power of W
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Level


Power of KS-W against Weibull for n=10 and lambda=1
Power of KS-W
Power of KS
Power of W
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Level


Power of KS-W against Lognormal for n=10 and lambda=1
Power
Significance Level
Power of KS-W
Power of KS
Power of W
1
0.9
0.8
0.7
0.6
0.5
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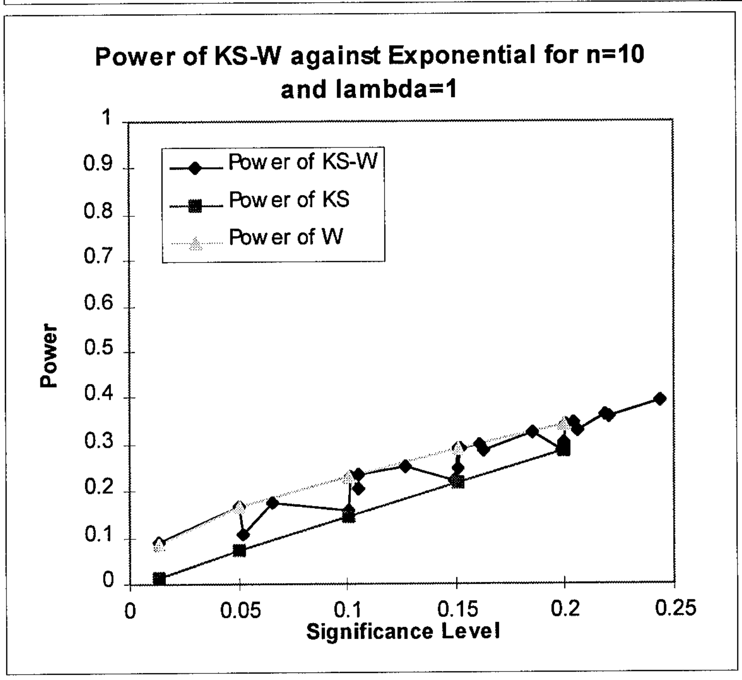
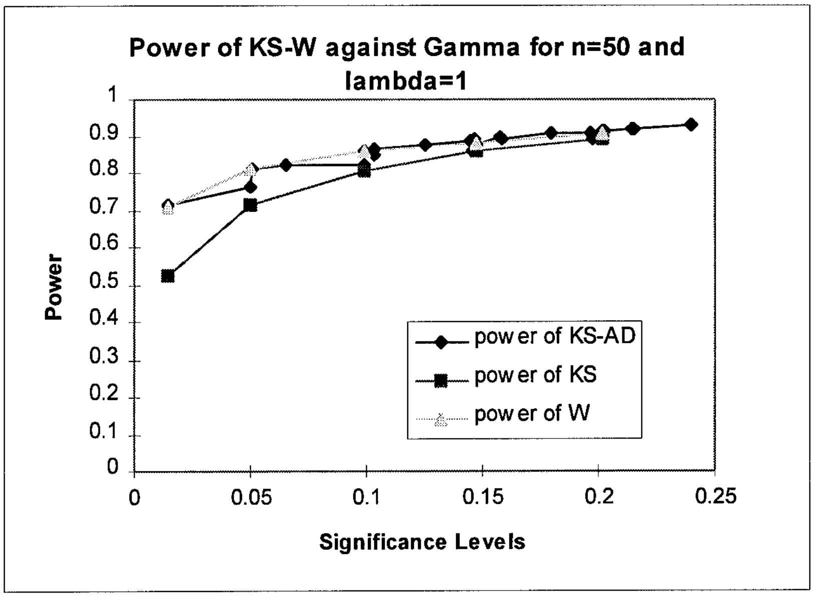
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25


Power of KS-W against Exponential for n=10 and lambda=1
Power
Significance Level
Power of KS-W
Power of KS
Power of W
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25


Power of KS-W against Gamma for n=50 and lambda=1
Power
Significance Levels
power of KS-AD
power of KS
power of W
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0.2
0.3
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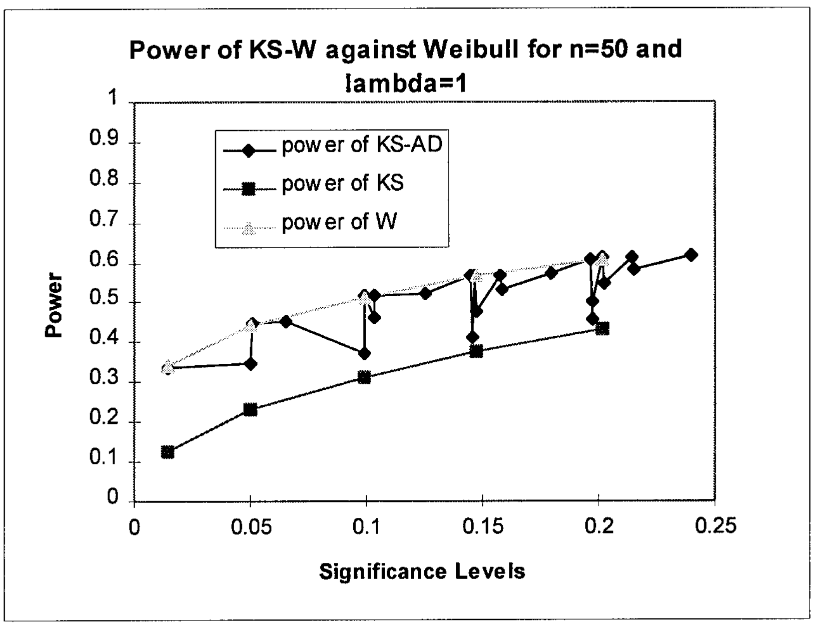
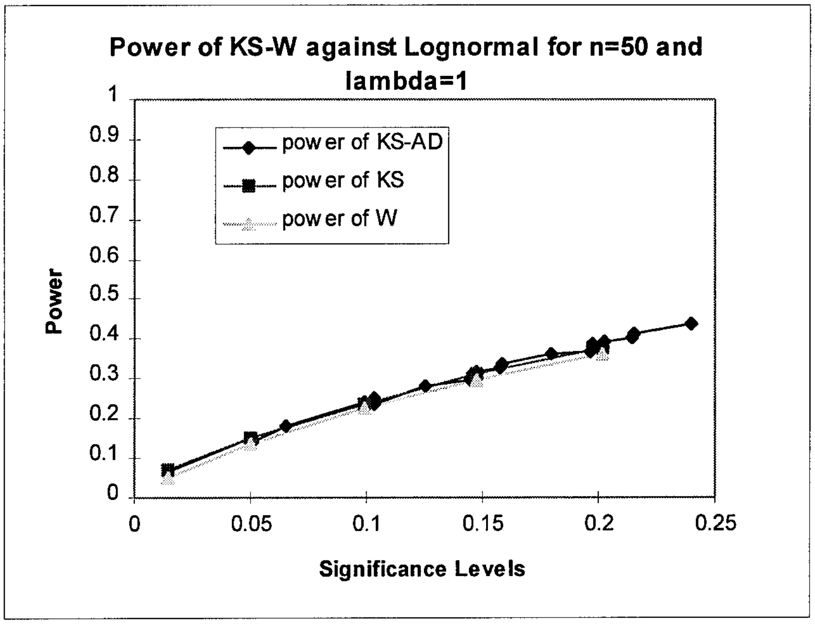
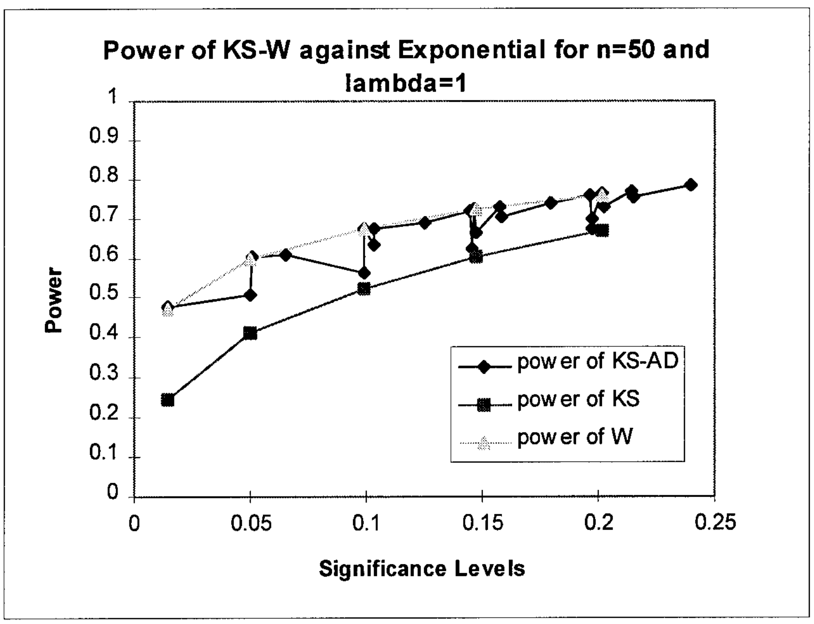
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of KS-W against Weibull for n=50 and lambda=1
Power
Significance Levels
power of KS-AD
power of KS
power of W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25



Power of KS-W against Lognormal for n=50 and lambda=1
power of KS-AD
power of KS
power of W
Power
Significance Levels
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25



Power of KS-W against Exponential for n=50 and lambda=1
power of KS-AD
power of KS
power of W
Power
Significance Levels
0
0.1
0.2
0.3
0.4
0.5
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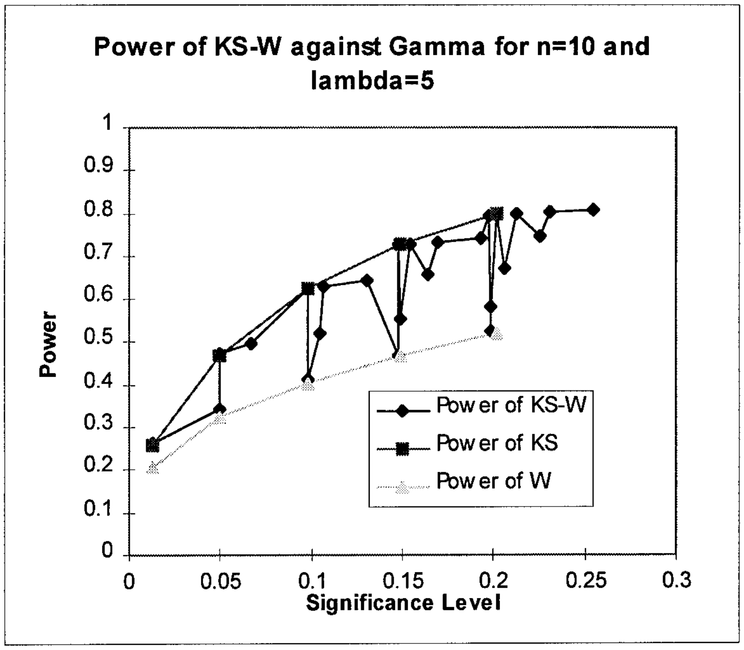
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of KS-W against Gamma for n=10 and lambda=5
Power
Significance Level
Power of KS-W
Power of KS
Power of W
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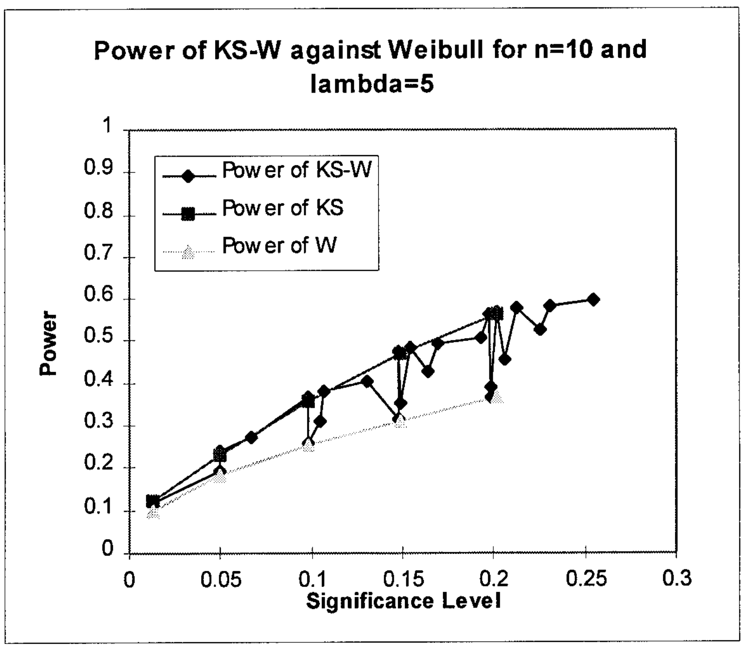
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25
0.3


Power of KS-W against Weibull for n=10 and lambda=5
Power
Significance Level
Power of KS-W
Power of KS
Power of W
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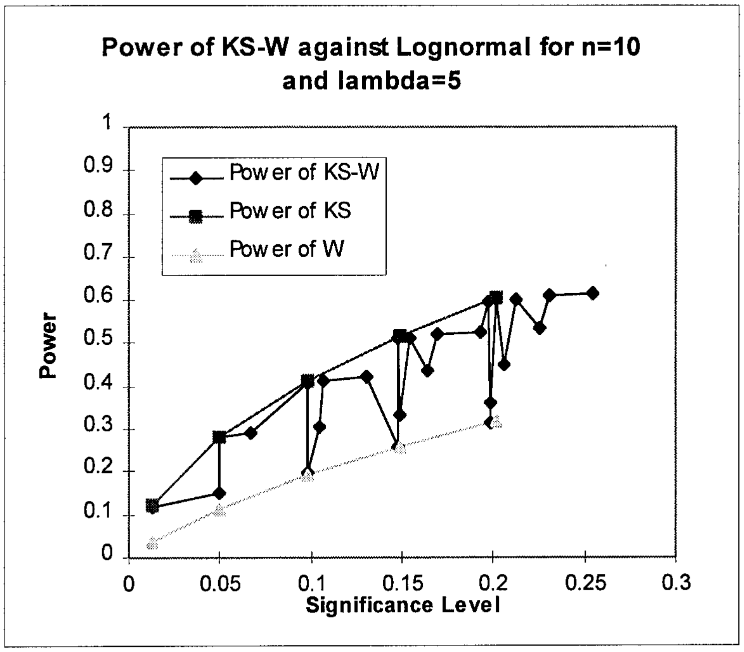
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25
0.3


Power of KS-W against Lognormal for n=10 and lambda=5
Power
Significance Level
Power of KS-W
Power of KS
Power of W
0
0.1
0.2
0.3
0.4
0.5
0.6
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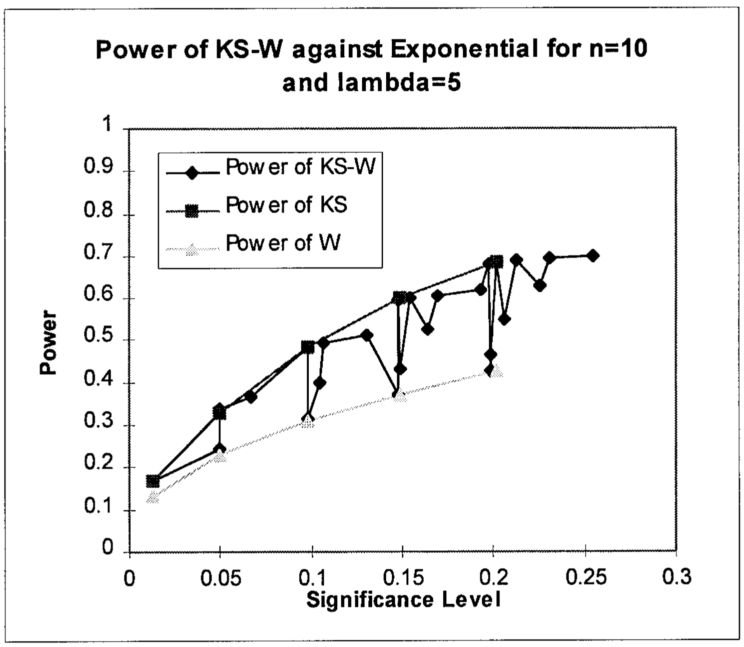
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25
0.3


Power of KS-W against Exponential for n=10 and lambda=5
Power
Significance Level
Power of KS-W
Power of KS
Power of W
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0.2
0.3
0.4
0.5
0.6
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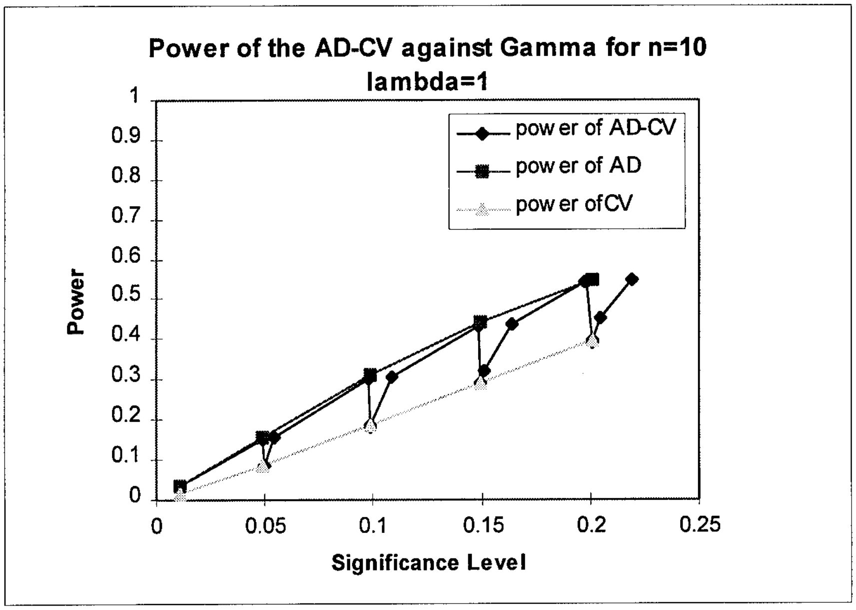
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25
0.3


Power of the AD-CV against Gamma for n=10 lambda=1
Power
Significance Level
pow er of AD-CV
pow er of AD
pow er ofCV
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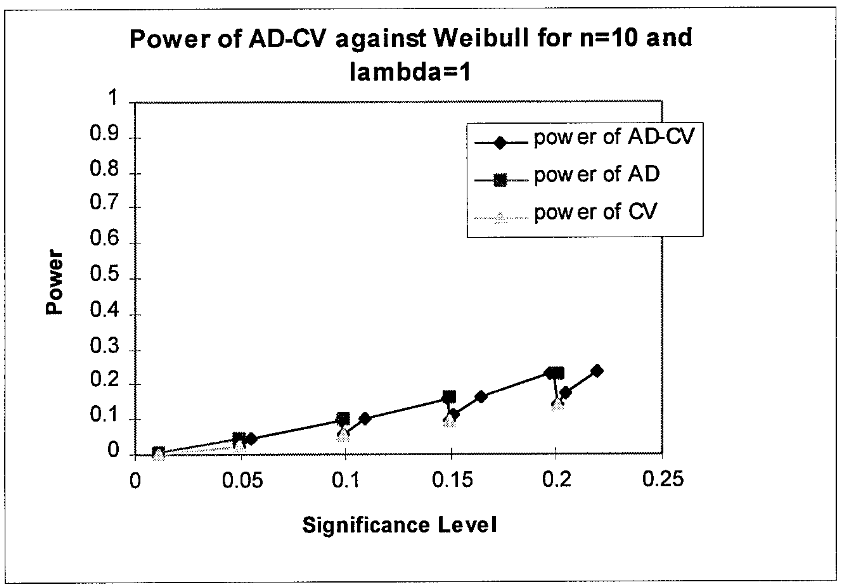
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of AD-CV against Weibull for n=10 and lambda=1
Power
Significance Level
pow er of AD-CV
pow er of AD
pow er of CV
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
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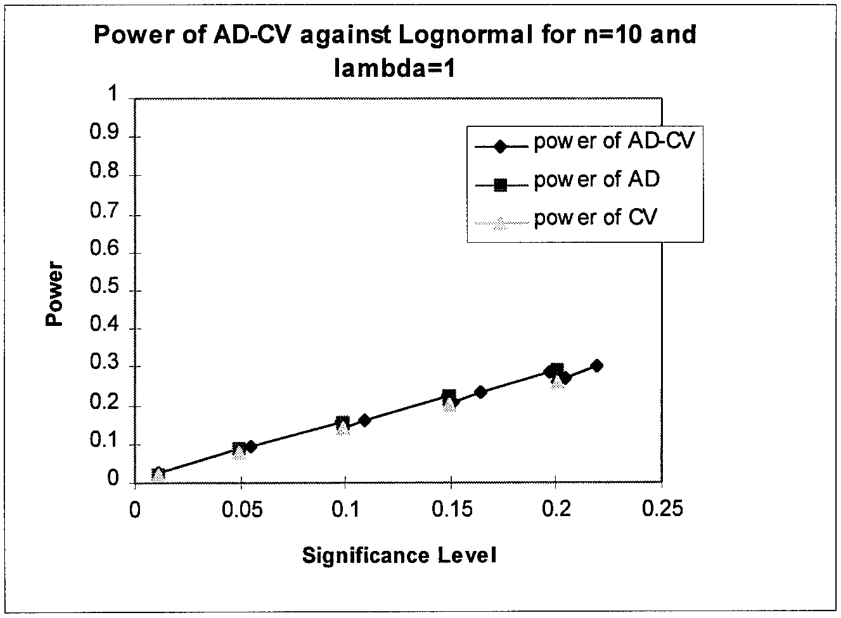
0.2
0.25


Power of AD-CV against Lognormal for n=10 and lambda=1
Power
Significance Level
power of AD-CV
power of AD
power of CV
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
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0.1
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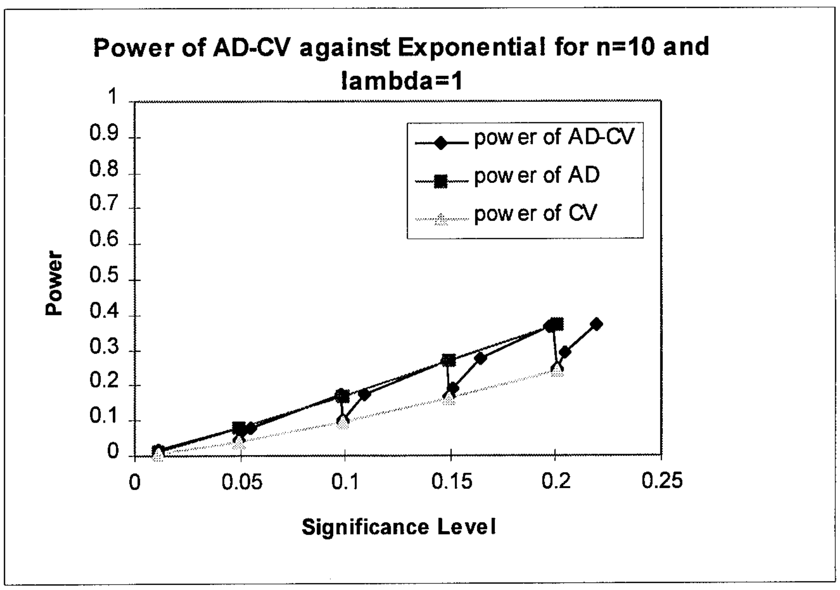
0.25


Power of AD-CV against Exponential for n=10 and lambda=1
Power
Significance Level
power of AD-CV
power of AD
power of CV
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
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0.05
0.1
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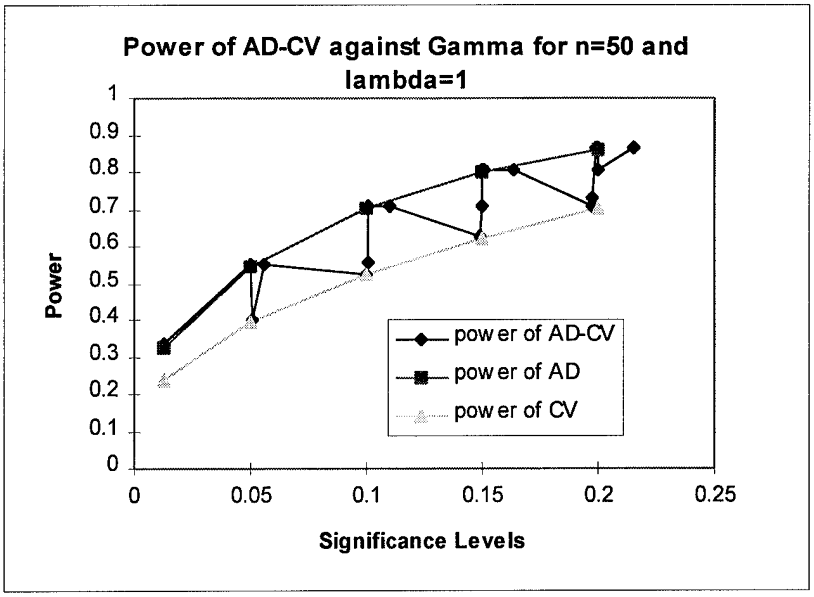
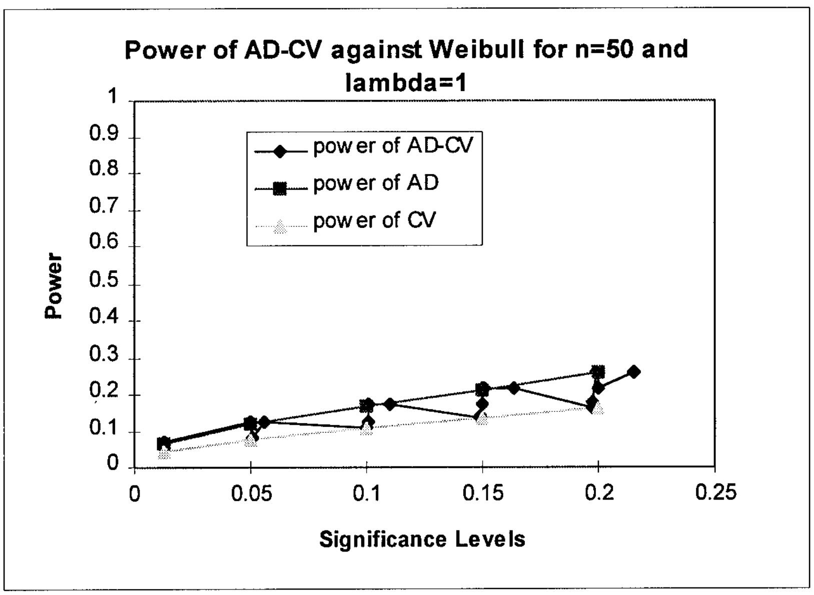
0.2
0.25


Power of AD-CV against Gamma for n=50 and lambda=1
Power
Significance Levels
power of AD-CV
power of AD
power of CV
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of AD-CV against Weibull for n=50 and lambda=1
Power
Significance Levels
power of AD-CV
power of AD
power of CV
0
0.1
0.2
0.3
0.4
0.5
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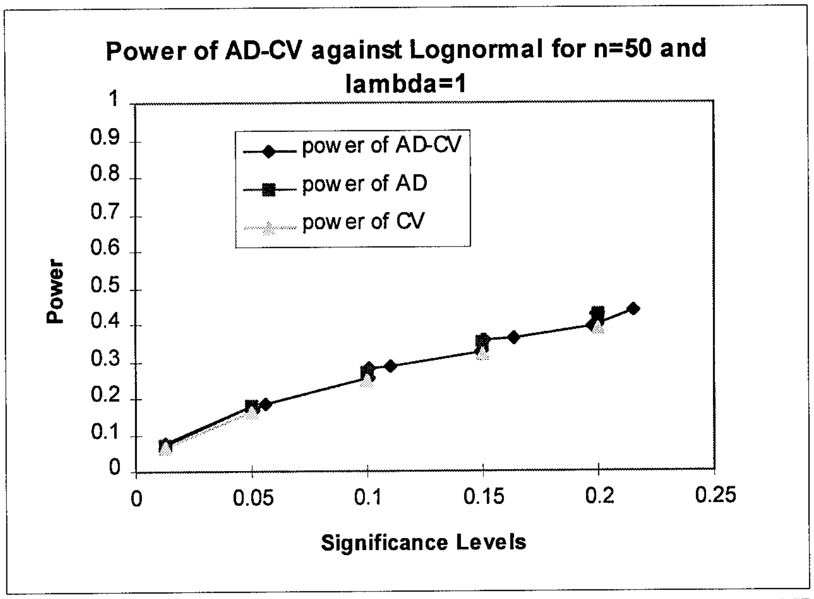
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25



Power of AD-CV against Lognormal for n=50 and lambda=1
power of AD-CV
power of AD
power of CV
Power
Significance Levels
0
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0.2
0.3
0.4
0.5
0.6
0.7
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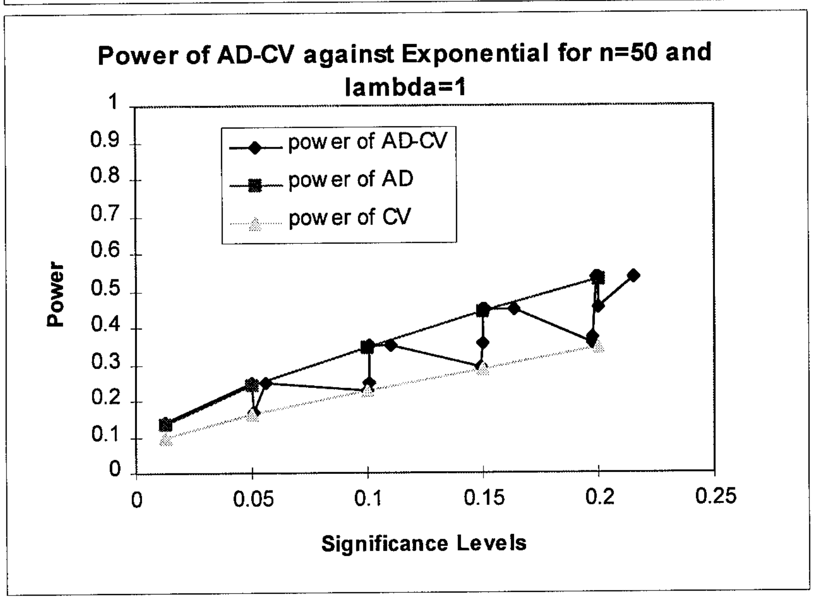
0.9
1
0.05
0.15
0.25



Power of AD-CV against Exponential for n=50 and lambda=1
power of AD-CV
power of AD
power of CV
Power
Significance Levels
0
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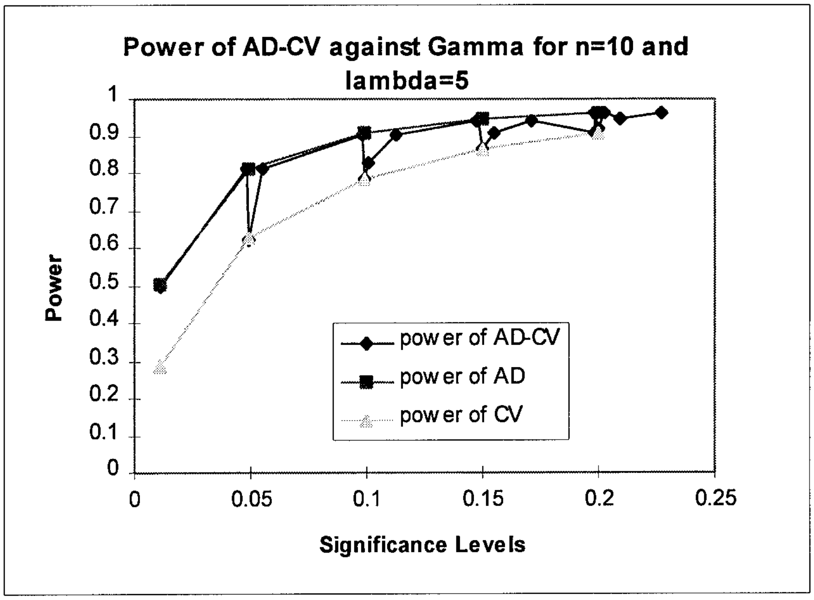
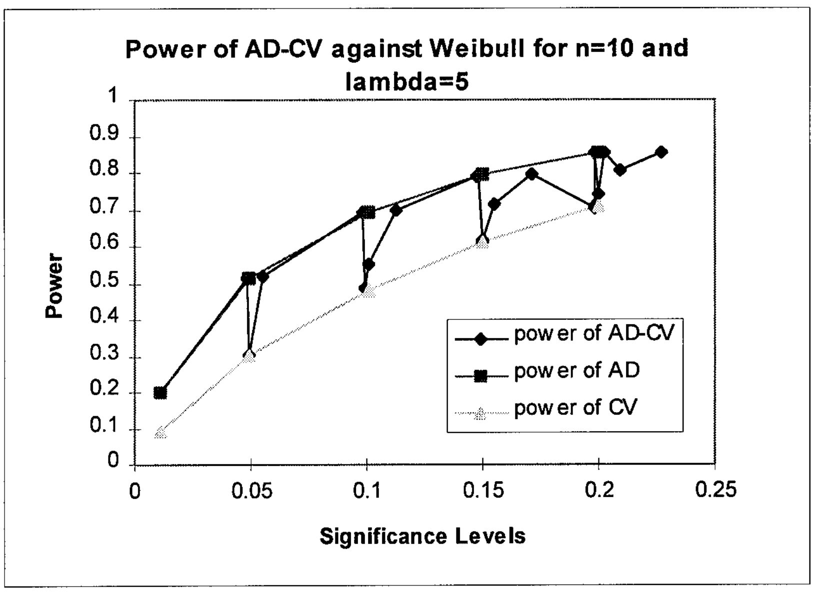
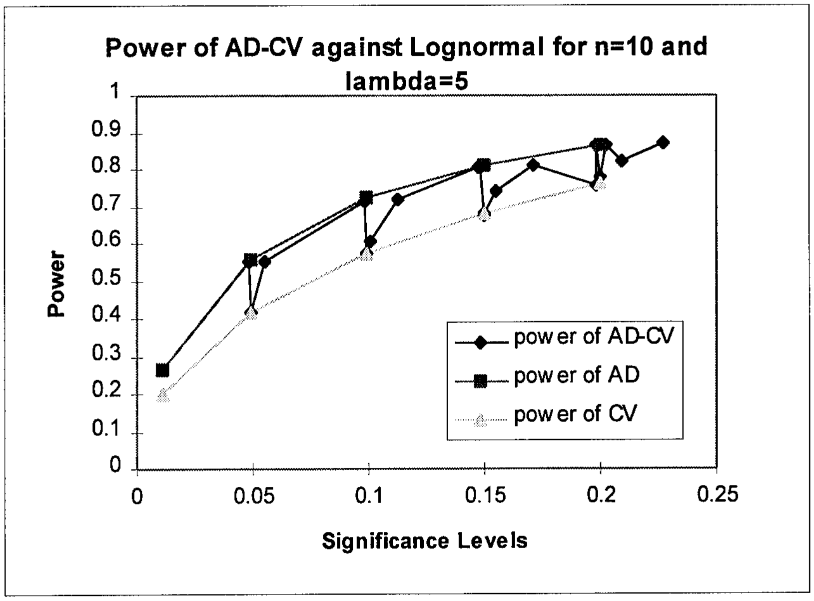
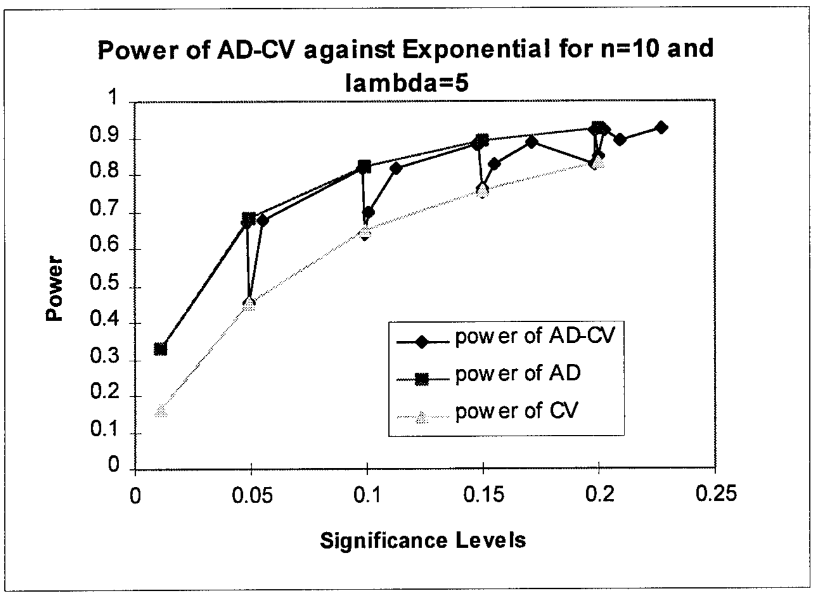
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25


Power of AD-CV against Gamma for n=10 and lambda=5
Power
Significance Levels
power of AD-CV
power of AD
power of CV
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25

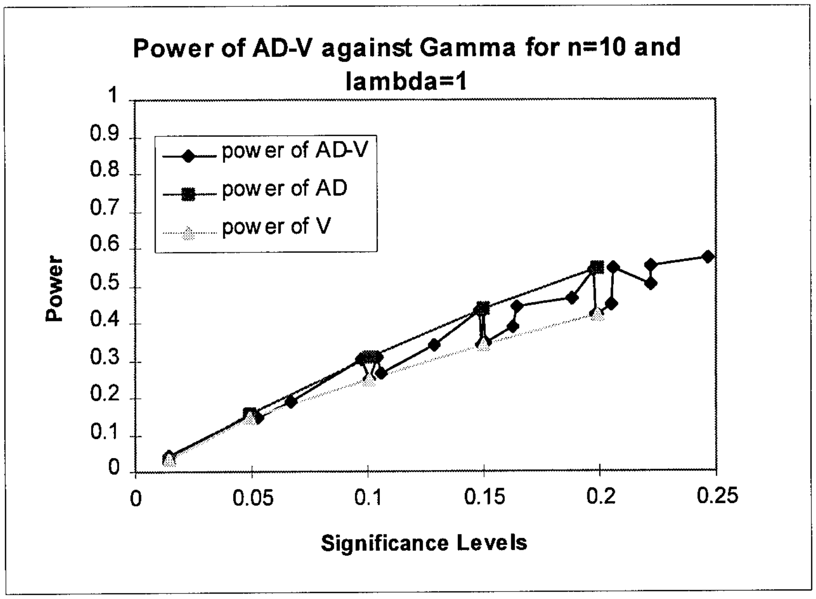

Power of AD-CV against Weibull for n=10 and lambda=5
Power
Significance Levels
power of AD-CV
power of AD
power of CV
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25



Power of AD-CV against Lognormal for n=10 and lambda=5
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Levels
power of AD-CV
power of AD
power of CV



Power of AD-CV against Exponential for n=10 and lambda=5
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Levels
power of AD-CV
power of AD
power of CV


Power of AD-V against Gamma for n=10 and lambda=1
power of AD-V
power of AD
power of V
Power
Significance Levels
1
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0.3
0.2
0.1
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0.05
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0.2
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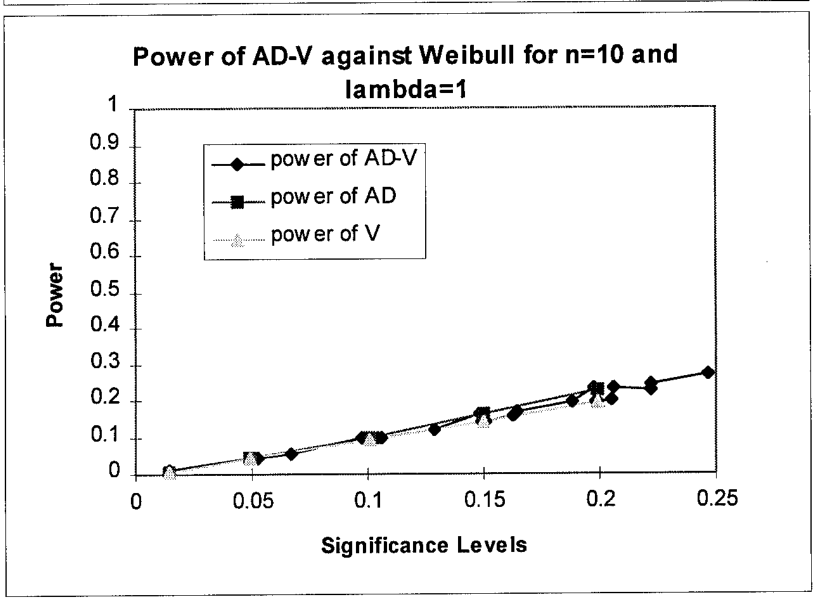
Power of AD-V against Weibull for n=10 and lambda=1
power of AD-V
power of AD
power of V
Power
Significance Levels
1
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0.8
0.7
0.6
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0.3
0.2
0.1
0
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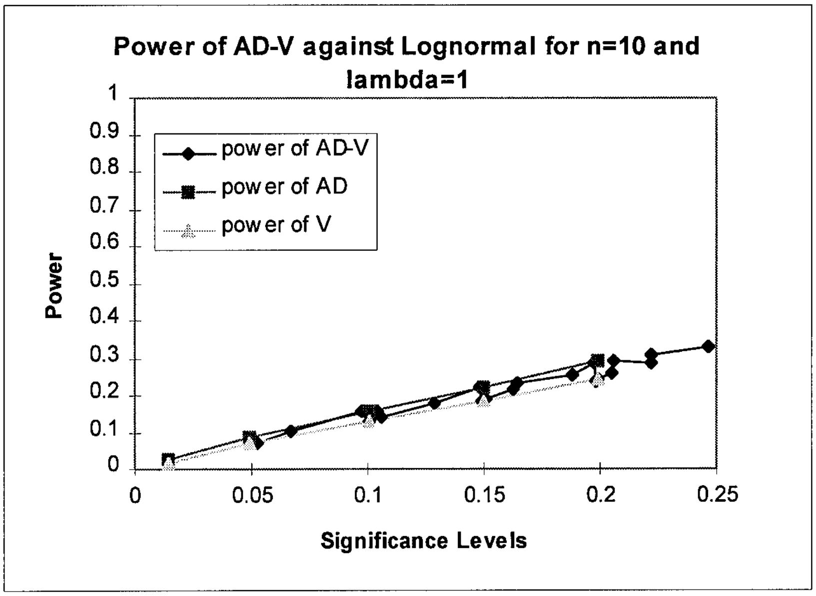
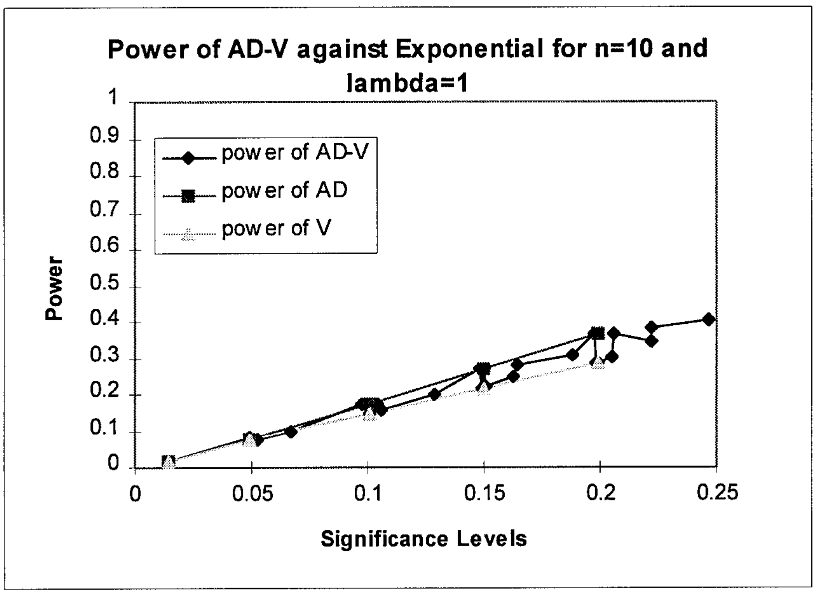
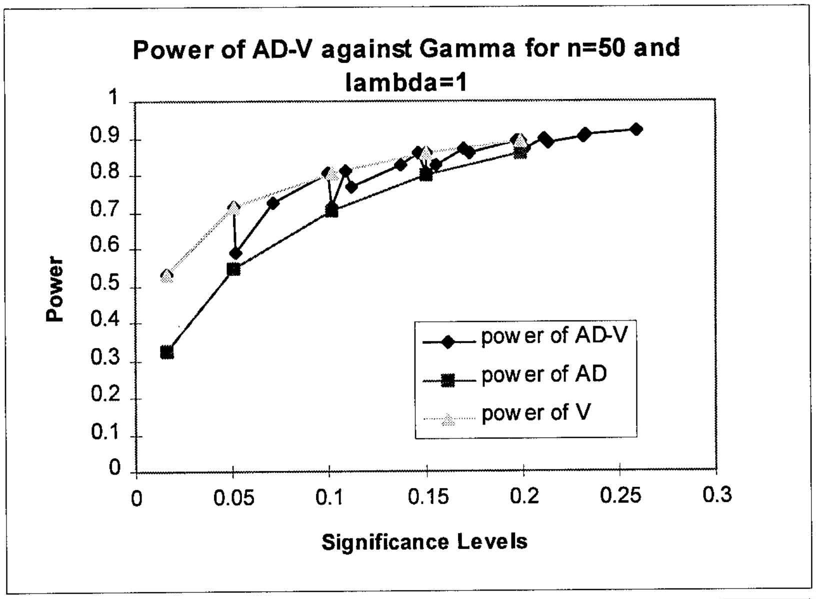
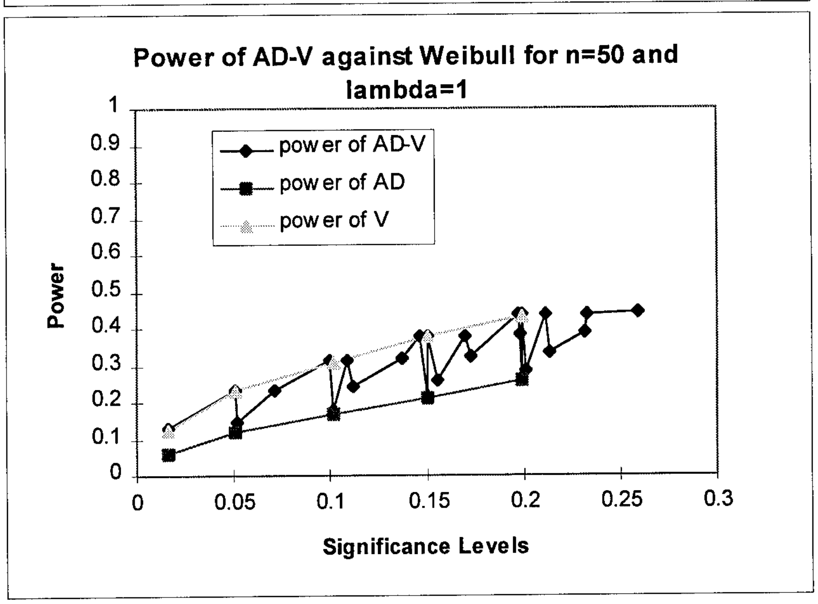
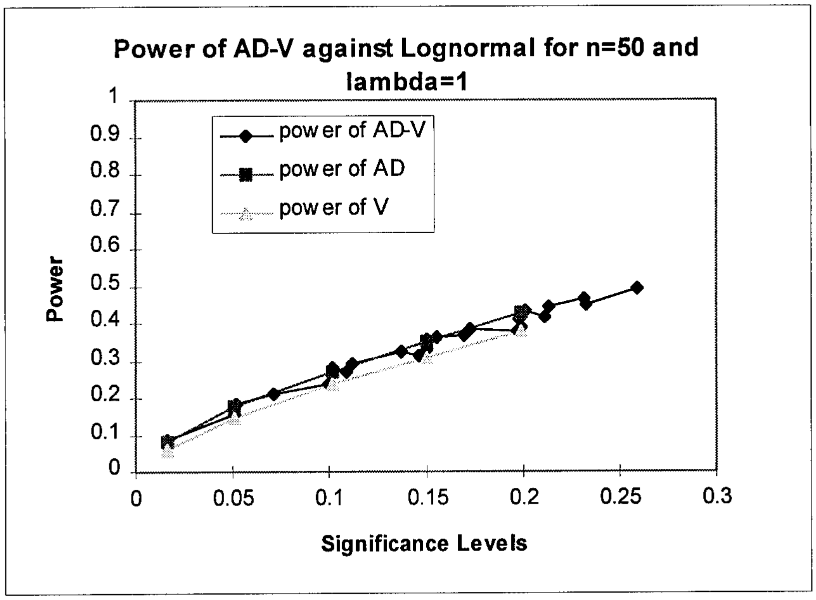
0.05
0.1
0.15
0.2
0.25


Power of AD-V against Lognormal for n=10 and lambda=1
Power
Significance Levels
power of AD-V
power of AD
power of V
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of AD-V against Exponential for n=10 and lambda=1
Power
Significance Levels
power of AD-V
power of AD
power of V
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of AD-V against Gamma for n=50 and lambda=1
Power
Significance Levels
power of AD-V
power of AD
power of V
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3


Power of AD-V against Weibull for n=50 and lambda=1
Power
Significance Levels
power of AD-V
power of AD
power of V
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3


Power of AD-V against Lognormal for n=50 and lambda=1
power of AD-V
power of AD
power of V
Power
Significance Levels
0
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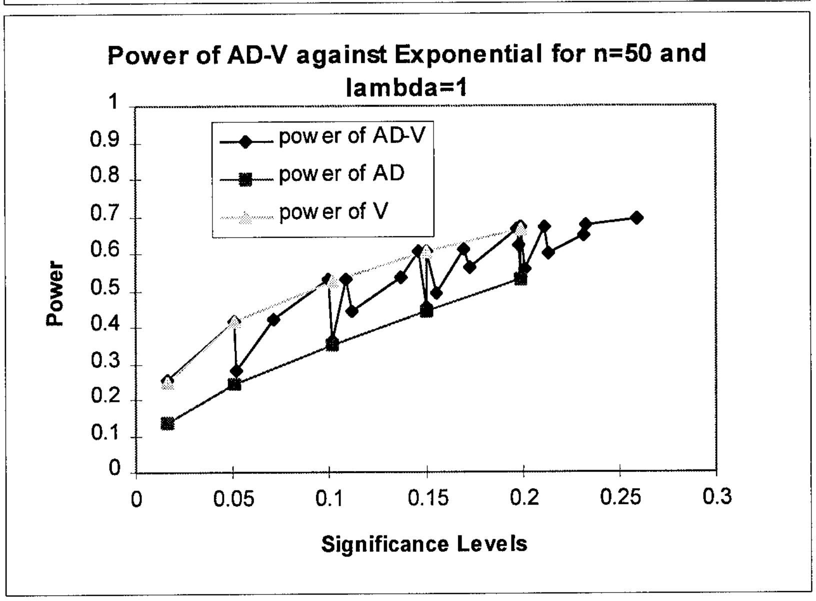
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25


Power of AD-V against Exponential for n=50 and lambda=1
power of AD-V
power of AD
power of V
Power
Significance Levels
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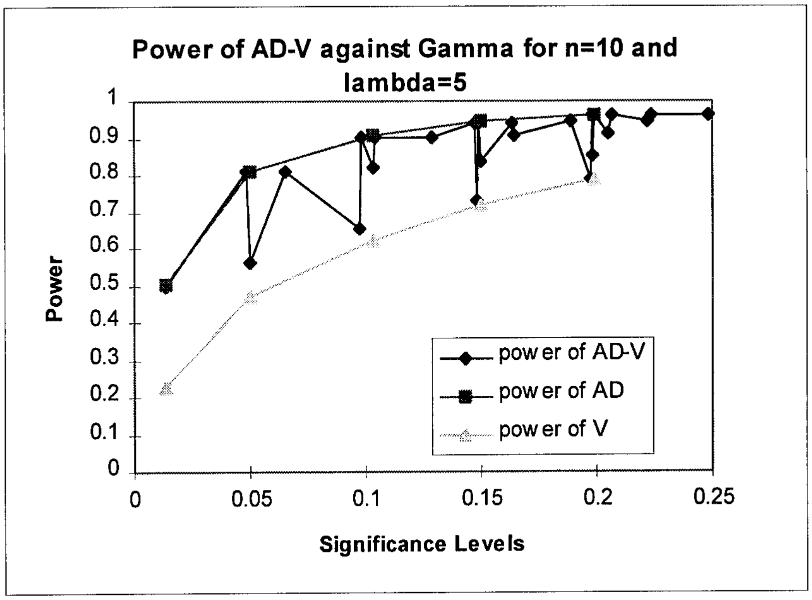
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25


Power of AD-V against Gamma for n=10 and lambda=5
Power
Significance Levels
power of AD-V
power of AD
power of V
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0.4
0.5
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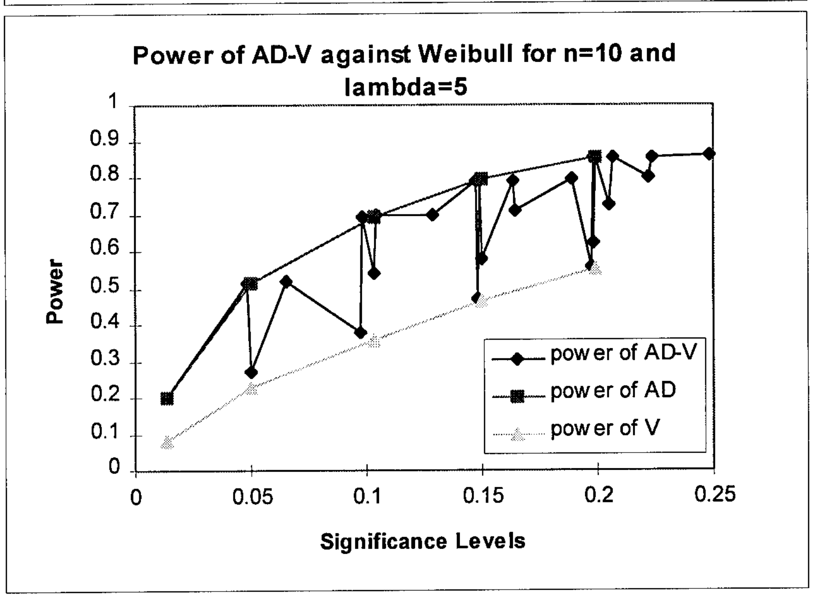
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of AD-V against Weibull for n=10 and lambda=5
Power
Significance Levels
power of AD-V
power of AD
power of V
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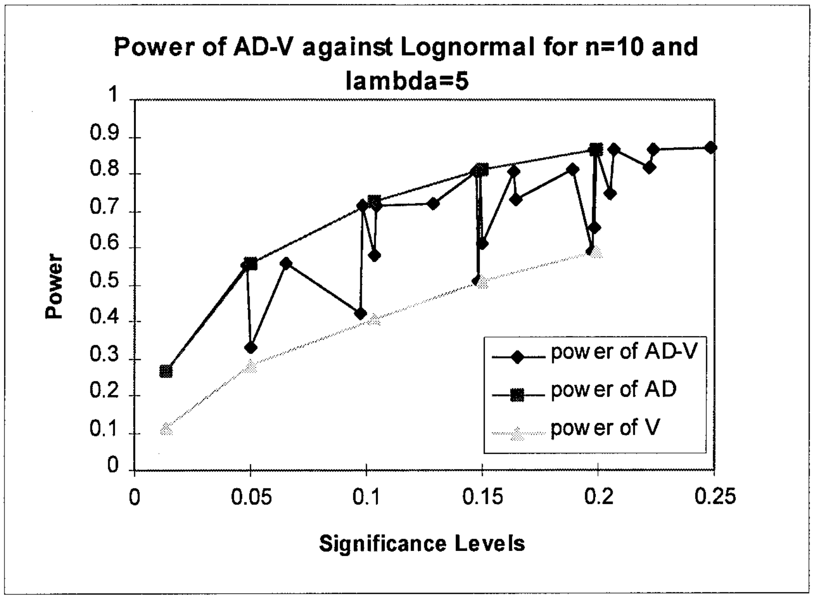
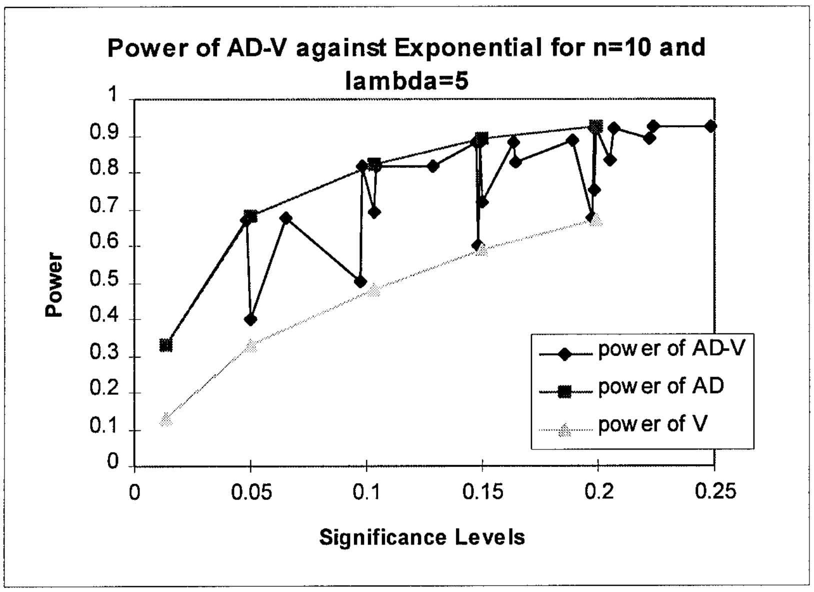
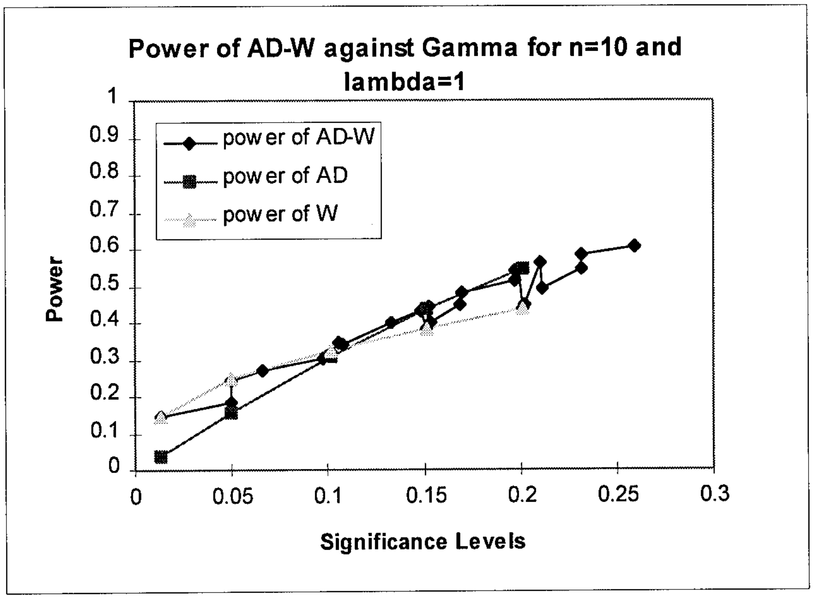
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25

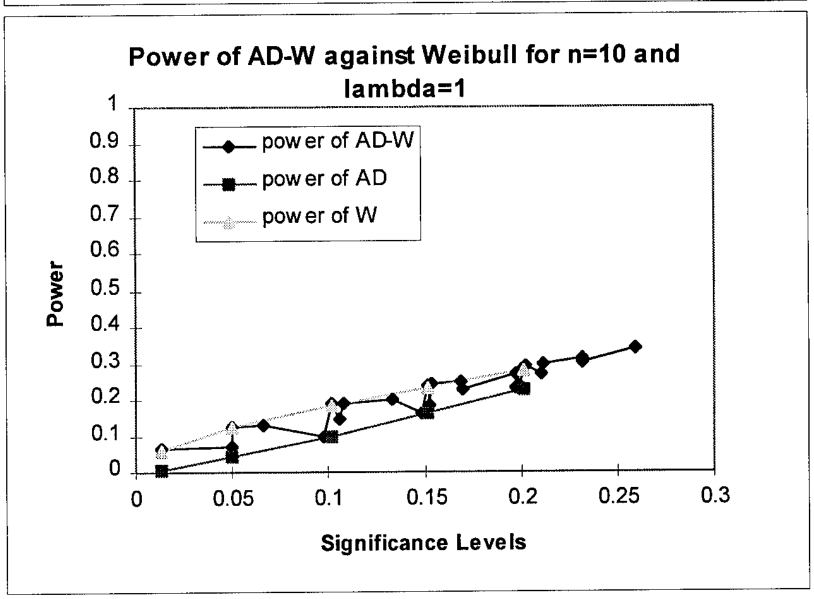


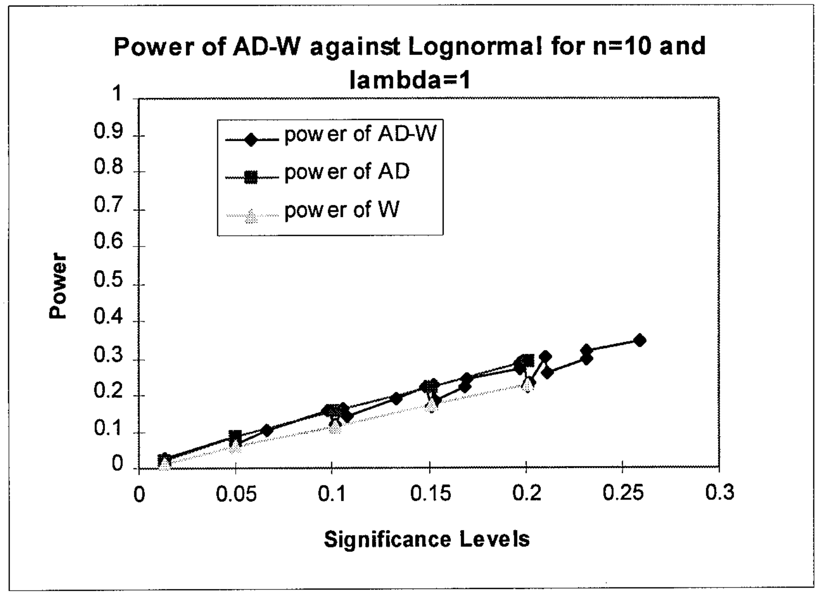
Power of AD-V against Lognormal for n=10 and lambda=5
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Levels
power of AD-V
power of AD
power of V

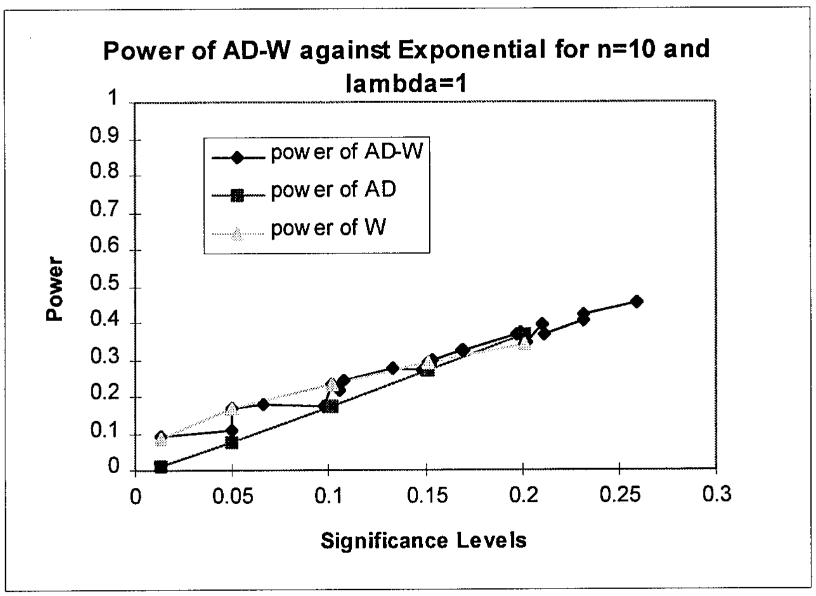


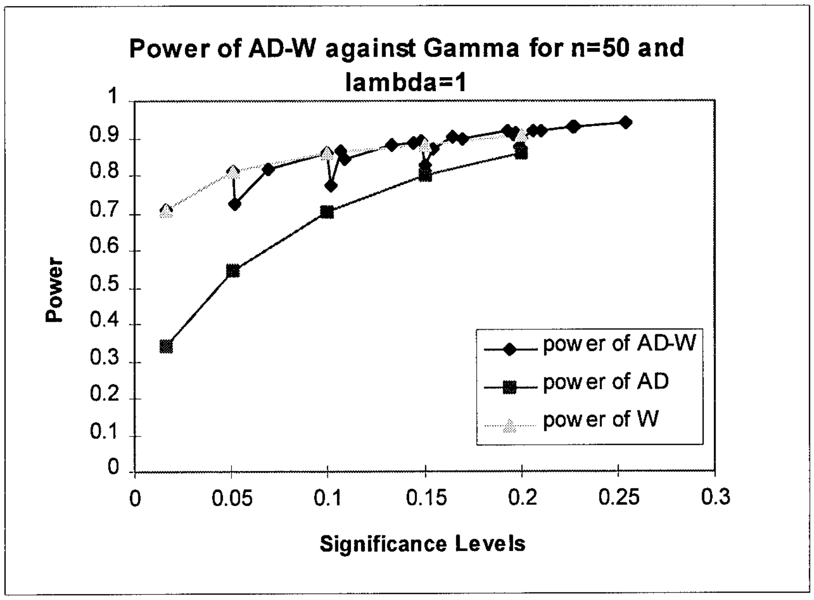
Power of AD-V against Exponential for n=10 and lambda=5
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
Significance Levels
power of AD-V
power of AD
power of V

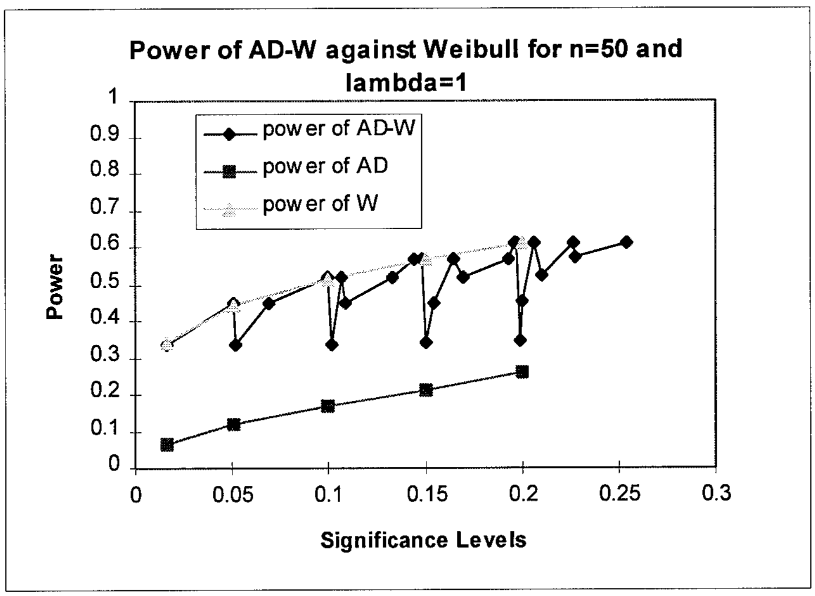

Power of AD-W against Gamma for n=10 and lambda=1
power of AD-W
power of AD
power of W
Power
Significance Levels
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.05
0.1
0.15
0.2
0.25
0.3

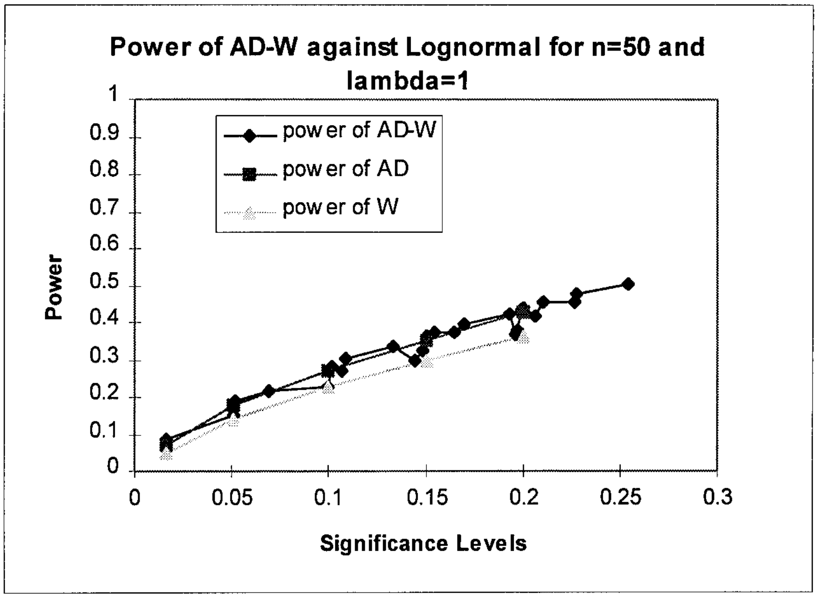

Power of AD-W against Weibull for n=10 and lambda=1
power of AD-W
power of AD
power of W
Power
Significance Levels
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.05
0.1
0.15
0.2
0.25
0.3

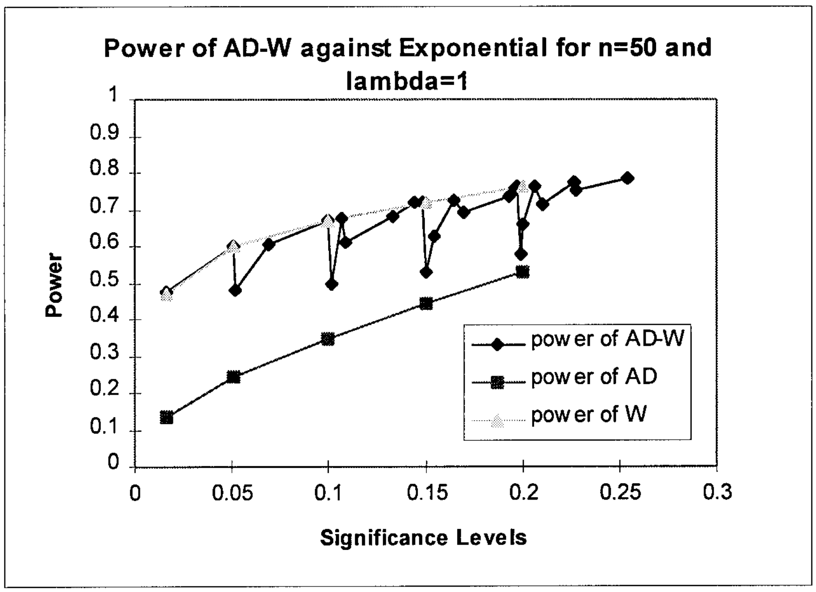

Power of AD-W against Lognormal for n=10 and lambda=1
power of AD-W
power of AD
power of W
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3
Significance Levels

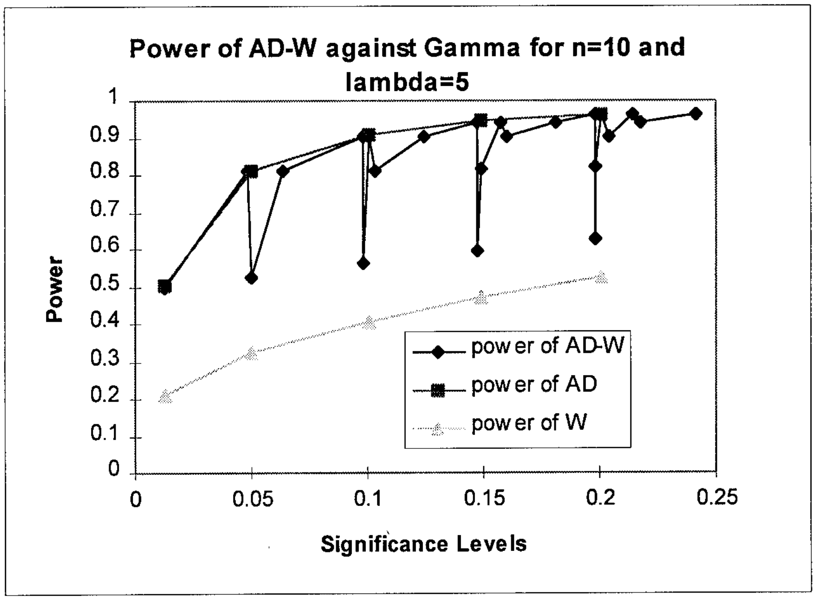

Power of AD-W against Exponential for n=10 and lambda=1
power of AD-W
power of AD
power of W
Power
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3
Significance Levels

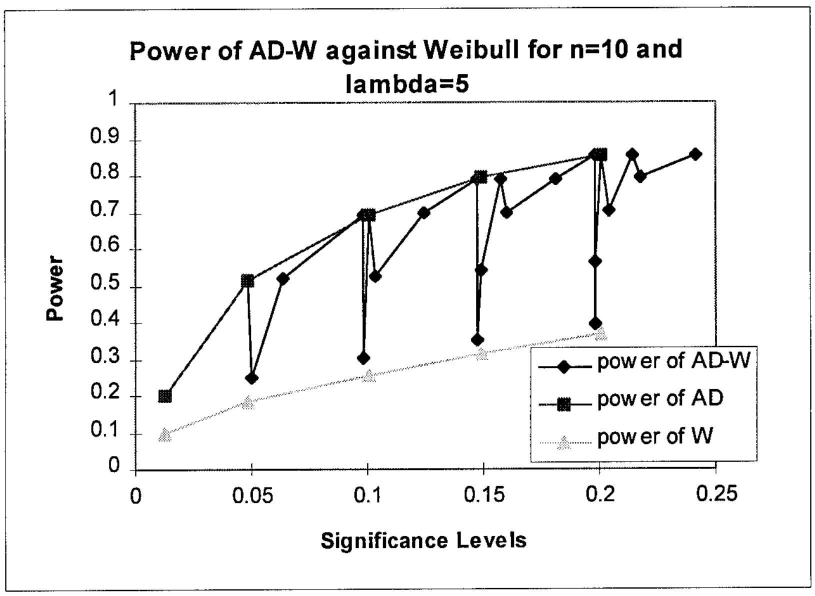

Power of AD-W against Gamma for n=50 and lambda=1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Power
power of AD-W
power of AD
power of W
0
0.05
0.1
0.15
0.2
0.25
0.3
Significance Levels

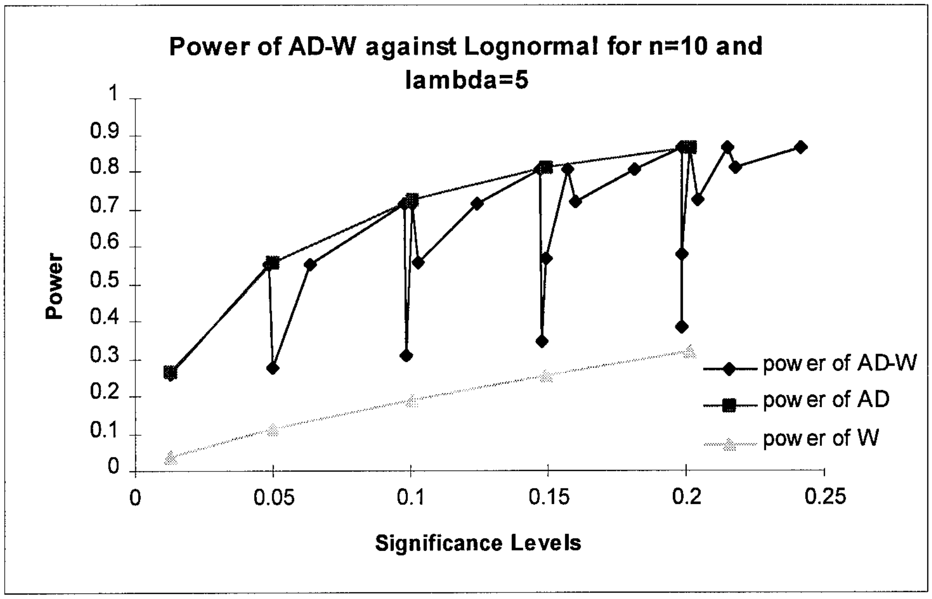

Power of AD-W against Weibull for n=50 and lambda=1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Power
power of AD-W
power of AD
power of W
0
0.05
0.1
0.15
0.2
0.25
0.3
Significance Levels


Power of AD-W against Lognormal for n=50 and lambda=1
Power
Significance Levels
power of AD-W
power of AD
power of W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25


Power of AD-W against Exponential for n=50 and lambda=1
Power
Significance Levels
power of AD-W
power of AD
power of W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.05
0.15
0.25


Power of AD-W against Gamma for n=10 and lambda=5
Power
Significance Levels
power of AD-W
power of AD
power of W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25


Power of AD-W against Weibull for n=10 and lambda=5
Power
Significance Levels
power of AD-W
power of AD
power of W
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
0.05
0.1
0.15
0.2
0.25



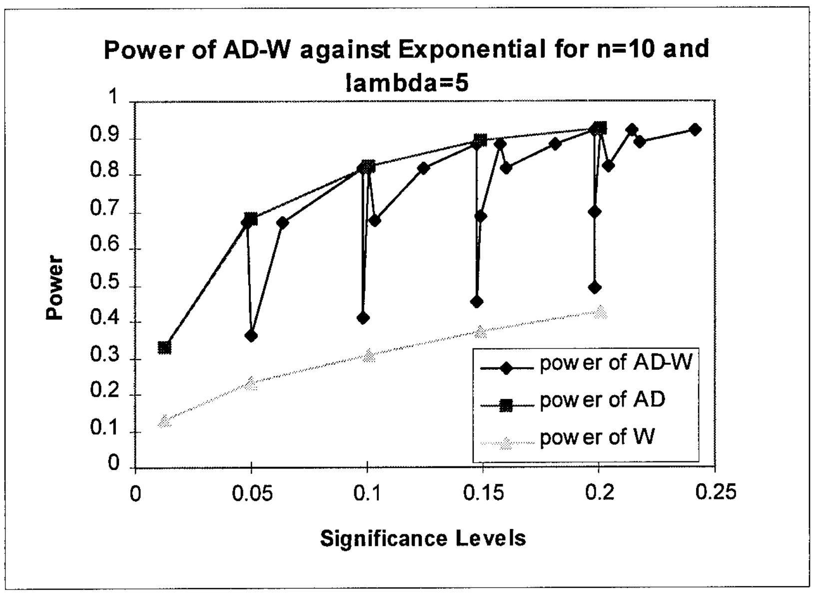


Figure 18 Graphs of the Sequential Power Study

V. Conclusions and Recommendations

5.1 Conclusions

The following conclusions are based on the results and analysis presented in the Chapter 4:

1. The tests are applicable to any samples with a size of 5 through 100.
2. A successful completion of the regression study has revealed a strong relationship between shape parameters, sample sizes, and critical values for all five GOFTs studied.
3. All five EDF GOFT procedures achieved an empirical significance level indistinguishable from the stated significance level for the inverse Gaussian distribution with a sample size 5 through 50 for ϕ =1 and ϕ =5. Monte Carlo power results indicated that for sample sizes n = 60, 70, 80, 90, and 100 and ϕ = 5, empirical significance levels gradually decrease as sample sizes increase. However, empirical significance levels are indistinguishable from the stated significance levels for sample sizes n = 60, 70, 80, 90, and 100 and ϕ =1.
4. It appears that none of the tests examined in this thesis are very powerful when the sample size is only five. As the sample size increases the powers of all tests increase for all significance levels.
5. When the alternate distribution is very similar in shape (especially when it is more skewed then the null hypothesized inverse Gaussian distribution) the W test gives the best power against the alternate distribution. Otherwise, the AD test is more powerful in discriminating the null hypothesis.
6. KS and V have the same power in all cases studied.
7. All GOFTs examined are not powerful against the symmetric distributions.

8. The power of the sequential tests against alternate distributions for all significance levels examined is some value between the powers of the two basic tests at that significance level.

5.2 Further Research

New directional GOFTs could be developed for the inverse Gaussian distribution. New GOFTs which are powerful at opposite directions or against different shapes could be examined and applied sequentially to overcome the weakness of EDF GOFTs against symmetric densities in the case where the null hypothesized distribution is inverse Gaussian.

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Appendix A. The Fortran Program for The Critical Values

```
c ******************************************************************
c                        MAIN PROGRAM
c                       CRITICAL VALUES
c ******************************************************************
c       This program generates critical values for the modified Kolmogorov-Smirnov
c    (KS), Anderson-Darling (AD),  Cramer-von Mises (CV), Kupier (V), and Watson
c    (W) tests for Inverse Gaussian Distribution with two unknown parameters
c ******************************************************************
c    BEGIN:
c    Variable Declarations
      include 'igaus.inc'
      INTEGER i, nsamp, shape
      REAL phi, alpha
c    Open Output Files to Store Computed Critical Values
      OPEN(UNIT=7, FILE='IGAUS',STATUS='new')
      OPEN(UNIT=11,ACCESS='sequential', FILE='GUNES', STATUS='new',
     1        FORM='UNFORMATTED')
      PRINT*,'PLEASE ENTER THE NUMBER'
      PRINT*,'OF TEST STATISTICS WHICH'
      PRINT*,'YOU WANT TO CREATE.'
      READ*, nst
      mu = 1.0
c    Compute 50002 Plotting Positions on the Y-axis
      Y(0) = 0.0
      DO 10 i = 1, nst
        Y(i) = (i-0.3)/(nst+0.4)
10    CONTINUE
      Y(nst+1)=1.0
      PRINT*,'Selected Median Ranks Plotting Positions to be used'
      PRINT*,'to find critical values.'
      PRINT*,' '
      PRINT*,'    Y(50001) = ', Y(50001)
      PRINT*,'    Y(50000) = ', Y(50000)
      PRINT*,'99%:Y(49500) = ', Y(49500)
      PRINT*,'95%:Y(47500) = ', Y(47500)
      PRINT*,'90%:Y(45000) = ', Y(45000)
      PRINT*,'85%:Y(42500) = ', Y(42500)
      PRINT*,'80%:Y(40000) = ', Y(40000)
c    Plotting positions computation was completed.
      PRINT*,'ENTER RANDOM NUMBER SEED OR 0(zero) FOR DEFAULT.'
      READ*, dseed
```

```
      IF (dseed.EQ.0) dseed=487519.D00
      PRINT*,'PLEASE WAIT FOR A WHILE. COMPUTATIONS IN PROGRESS.'
c     Begin DO loop 20 for Shape Parameter Phi
      DO 20 shape=1,24,1
        nshp=shape
        IF (shape.EQ.1) lambda=0.001
        IF (shape.EQ.2) lambda=0.5
        IF (shape.EQ.3) lambda=1.0
        IF (shape.EQ.4) lambda=1.5
        IF (shape.EQ.5) lambda=2.0
        IF (shape.EQ.6) lambda=2.5
        IF (shape.EQ.7) lambda=3.0
        IF (shape.EQ.8) lambda=3.5
        IF (shape.EQ.9) lambda=4.0
        IF (shape.EQ.10) lambda=4.5
        IF (shape.EQ.11) lambda=5.0
        IF (shape.EQ.12) lambda=10.0
        IF (shape.EQ.13) lambda=15.0
        IF (shape.EQ.14) lambda=20.0
        IF (shape.EQ.15) lambda=25.0
        IF (shape.EQ.16) lambda=30.0
        IF (shape.EQ.17) lambda=35.0
        IF (shape.EQ.18) lambda=40.0
        IF (shape.EQ.19) lambda=50.0
        IF (shape.EQ.20) lambda=60.0
        IF (shape.EQ.21) lambda=70.0
        IF (shape.EQ.22) lambda=80.0
        IF (shape.EQ.23) lambda=100.0
        IF (shape.EQ.24) lambda=1000.0
        phi=lambda
c       Write Headings for Output Data
        WRITE(7,11)
        WRITE(7,9)
        WRITE(7,11)
        WRITE(7,12)
        WRITE(7,11)
        WRITE(7,13)
        DO 35 i=1, 50
          xx(i)=0
35      continue
c       Begin DO loop 30 for sample size n=5(5)50
        DO 30 nsamp=5,50,5
          CALL RNSET(dseed)
```

```
            n=nsamp
            nsiz=n/5
            WRITE(7,14)
c     Begin DO loop 40 for 50,000 iterations
            DO 40 it=1,nst
              CALL IGDEV
              CALL HYPCDF
              CALL TESTAT
40           CONTINUE
c     End DO loop 40 for 50,000 iterations
c     Begin DO loop 50 for Percentiles
            DO 50 npct=1,5
              CALL CRTVAL
c     Write CRTVAL Output File
              WRITE(7,15),1.0-pct, n, lambda,KScrit(nsiz,nshp,npct),
     1          ADcrit(nsiz,nshp,npct), CVMcrit(nsiz,nshp,npct),
     1          Vcrit(nsiz,nshp,npct), Wcrit(nsiz,nshp,npct)
              WRITE(11) KScrit(nsiz,nshp,npct),
     1          ADcrit(nsiz,nshp,npct), CVMcrit(nsiz,nshp,npct),
     1          Vcrit(nsiz,nshp,npct), Wcrit(nsiz,nshp,npct)
          PRINT*,' '
          PRINT*,' CRITICAL VALUES FROM MAIN PROGRAM '
          PRINT*,' pct =',pct, ' n =',n, ' Phi =',lambda
          PRINT*,' K-S =',KScrit(nsiz,nshp,npct),' AD =',
     1       ADcrit(nsiz,nshp,npct), ' CVM =',
     1       CVMcrit(nsiz,nshp,npct),' V =',Vcrit(nsiz,nshp,npct),
     1       ' W =',Wcrit(nsiz,nshp,npct)
50             CONTINUE
c     End DO loop 50 for percentiles
30           CONTINUE
c     End DO loop 30 for sample size n=5(5)50
20         CONTINUE
c     End DO loop 20 for shape parameter values
c ***********************************************************************
c        The remainder of the main program consist of commands to
c     format the output data and write the data and titles to a file
c     which can be printed out.
c     **********************************************************************
c     Write K-S Critical Values by Alpha Level
          WRITE(7,11)
          WRITE(7,17)
          WRITE(7,11)
          WRITE(7,18)
```

```
c     Begin DO loop 60 to sort critical values by alpha level
       DO 60 npct=1,5
         IF (npct.NE.5) alpha=0.25-(.05*npct)
         IF (npct.EQ.5) alpha=0.01
         nsiz=0
         n=0
         WRITE(7,11)
         WRITE(7,24)
         WRITE(7,25)
c     Begin DO loop 70 to sort Output by Sample Size
         DO 70 nsiz=1,10
           n=5*nsiz
           WRITE(7,16),alpha,n,KScrit(nsiz,1,npct),
     1              KScrit(nsiz,2,npct), KScrit(nsiz,3,npct),
     1              KScrit(nsiz,5,npct), KScrit(nsiz,7,npct),
     1              KScrit(nsiz,11,npct), KScrit(nsiz,12,npct),
     1              KScrit(nsiz,23,npct)
70         CONTINUE
c     End DO loop 70 After Sorting Output by Sample size
60       CONTINUE
c     End DO loop 60 After Sorting Output by alpha level
c     Write AD Critical Values by Alpha Level
       WRITE(7,11)
       WRITE(7,19)
       WRITE(7,11)
       WRITE(7,21)
          npct=0
c     Begin DO loop 80 to Sort Critical Values by Alpha Level
       DO 80 npct=1,5
         IF (npct.NE.5) alpha=0.25-(.05*npct)
         IF (npct.EQ.5) alpha=0.01
         nsiz=0
         n=0
         WRITE(7,11)
         WRITE(7,24)
         WRITE(7,25)
c     Begin DO loop 90 to sort Output by Sample Size
         DO 90 nsiz=1,10
           n=5*nsiz
           WRITE(7,16),alpha,n,ADcrit(nsiz,1,npct),
     1              ADcrit(nsiz,2,npct), ADcrit(nsiz,3,npct),
     1              ADcrit(nsiz,5,npct), ADcrit(nsiz,7,npct),
     1              ADcrit(nsiz,11,npct), ADcrit(nsiz,12,npct),
```

```
     1              ADcrit(nsiz,23,npct)
90         CONTINUE
c     End DO loop 90 After Sorting Output by Sample size
80         CONTINUE
c     End DO loop 80 After Sorting Output by alpha level
c     Write CVM Critical Values by Alpha Level
      WRITE(7,11)
      WRITE(7,22)
      WRITE(7,11)
      WRITE(7,23)
         npct=0
c     Begin DO loop 100 to Sort Critical Values by Alpha Level
      DO 100 npct=1,5
        IF (npct.NE.5) alpha=0.25-(.05*npct)
        IF (npct.EQ.5) alpha=0.01
        nsiz=0
        n=0
        WRITE(7,11)
        WRITE(7,24)
        WRITE(7,25)
c     Begin DO loop 110 to sort Output by Sample Size
        DO 110 nsiz=1,10
          n=5*nsiz
          WRITE(7,16),alpha,n,CVMcrit(nsiz,1,npct),
     1              CVMcrit(nsiz,2,npct), CVMcrit(nsiz,3,npct),
     1              CVMcrit(nsiz,5,npct), CVMcrit(nsiz,7,npct),
     1              CVMcrit(nsiz,11,npct), CVMcrit(nsiz,12,npct),
     1              CVMcrit(nsiz,23,npct)
110        CONTINUE
c     End DO loop 110 After Sorting Output by Sample size
100        CONTINUE
c     End DO loop 100 After Sorting Output by alpha level
c     ****************************************************************
c     Write V Critical Values by Alpha Level
      WRITE(7,11)
      WRITE(7,26)
      WRITE(7,11)
      WRITE(7,27)
c     Begin DO loop 120 to sort critical values by alpha level
      DO 120 npct=1,5
        IF (npct.NE.5) alpha=0.25-(.05*npct)
        IF (npct.EQ.5) alpha=0.01
        nsiz=0
```

```
      n=0
      WRITE(7,11)
      WRITE(7,24)
      WRITE(7,25)
c     Begin DO loop 130 to sort Output by Sample Size
      DO 130 nsiz=1,10
        n=5*nsiz
        WRITE(7,16),alpha,n,Vcrit(nsiz,1,npct),
     1          Vcrit(nsiz,2,npct), Vcrit(nsiz,3,npct),
     1          Vcrit(nsiz,5,npct), Vcrit(nsiz,7,npct),
     1          Vcrit(nsiz,11,npct), Vcrit(nsiz,12,npct),
     1          Vcrit(nsiz,23,npct)
130     CONTINUE
c     End DO loop 130 After Sorting Output by Sample size
120     CONTINUE
c     End DO loop 120 After Sorting Output by alpha level
c     ***********************************************************
c     Write W Critical Values by Alpha Level
      WRITE(7,11)
      WRITE(7,28)
      WRITE(7,11)
      WRITE(7,29)
c     Begin DO loop 140 to sort critical values by alpha level
      DO 140 npct=1,5
        IF (npct.NE.5) alpha=0.25-(.05*npct)
        IF (npct.EQ.5) alpha=0.01
        nsiz=0
        n=0
        WRITE(7,11)
        WRITE(7,24)
        WRITE(7,25)
c     Begin DO loop 150 to sort Output by Sample Size
        DO 150 nsiz=1,10
          n=5*nsiz
          WRITE(7,16),alpha,n,Wcrit(nsiz,1,npct),
     1          Wcrit(nsiz,2,npct), Wcrit(nsiz,3,npct),
     1          Wcrit(nsiz,5,npct), Wcrit(nsiz,7,npct),
     1          Wcrit(nsiz,11,npct), Wcrit(nsiz,12,npct),
     1          Wcrit(nsiz,23,npct)
150     CONTINUE
c     End DO loop 150 After Sorting Output by Sample size
140   CONTINUE
c     End DO loop 140 After Sorting Output by alpha level
```

```
c       SPECIFY FORMAT FOR OUTPUT
9       FORMAT('**************************************************')
11       FORMAT('                                        ')
12       FORMAT('    INVERSE GAUSSIAN CRITICAL VALUES       ')
13       FORMAT('alpha', 3x,'n',4x,'Phi',7x,'KS',8x,'AD',8x,'CVM',
   1                9x,'V',9x,'W')
14       FORMAT(69('-'))
15       FORMAT(' ',T3,F3.2,I5,F8.3,5F10.4)
16       FORMAT(' ',T3,F3.2,I4,8F8.4)
17       FORMAT('1',36X,'Table VI')
18       FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED K-S TEST')
19       FORMAT('1',36X,'Table VII')
21       FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED A-D TEST')
22       FORMAT('1',35X,'Table VIII')
23       FORMAT(19X,'CRITICAL VALUES FOR THE MODIFIED C-VM TEST')
24       FORMAT('alpha',3X,'n',3X,'0.001',5X,'0.5',5X,'1',5X,
   1                ' 2.0',5X,'3.0',5X,'5.0',5X,'10',5X,'100')
25       FORMAT(79('-'))
26       FORMAT(37X,'TABLE VIII')
27       FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED V TEST')
28       FORMAT(37X,'TABLE IX')
29       FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED W TEST')

        CLOSE(7)
        CLOSE(11)
        END
c       ========================================================
c                                   THE END
c       ========================================================
      SUBROUTINE IGDEV
c      Finds Inverse Gaussian Deviates and Parameters
      include 'igaus.inc'
      REAL s(50),r(50),P1
      REAL*8 xsum,sum,B,C,X1
      INTEGER i
      xsum=0.0
      CALL RNCHI(n,1.0,r)
      CALL RNUN(n,s)
      DO 10 i=1,n
        B=mu*r(i)
        C=mu/(2.0*lambda)
        X1=mu+C*(B-SQRT(B*(4.0*lambda+B)))
        P1=mu/(mu+X1)
```

```
      xx(i)=X1
      IF (s(i).GE.P1) xx(i)=mu*mu/X1
      xsum=xsum+xx(i)
10    CONTINUE
    muhat=xsum/real(n)
    sum=0.0
    DO 20 i=1, n
      sum=sum+(1.0/xx(i)-1.0/muhat)
20    CONTINUE
    lambdahat=1.0/((1.0/n)*sum)
    phihat=lambdahat/muhat
    CALL SVRGN(n,xx,x)
    RETURN
    END
c   ==========================================================
    SUBROUTINE HYPCDF
    include 'igaus.inc'
    REAL V1,V2,ANORDF,P1,P2
    INTEGER i
    DO 10 i=1,n
        V1=(x(i)/muhat-1.0)*SQRT(lambdahat/x(i))
        V2=-(1.0+x(i)/muhat)*SQRT(lambdahat/x(i))
        P1=ANORDF(V1)
        P2=ANORDF(V2)
        P(i) = P1+(e**(2*lambdahat/muhat))*P2
10    CONTINUE
    RETURN
    END
c  ============================================================
    SUBROUTINE TESTAT
    include 'igaus.inc'
    REAL  L,T,Z(50),DP(50),DM(50),DPLUS,DMINUS,psum,pmean,
   1      rest
    INTEGER i,j
    DPLUS=0
    DMINUS=0
    DO 5 i=1,50
      DP(i)=0
      DM(i)=0
5     CONTINUE
c    K-S & V Statistic
    DO 10 i=1,n
      DP(i)=ABS((i/real(n))-P(i))
```

```
      DM(i)=ABS(P(i)-(i-1.0)/real(n))
10    CONTINUE
      DPLUS=MAX(DP(1),DP(2),DP(3),DP(4),DP(5),DP(6),DP(7),
     1 DP(8),DP(9),DP(10),DP(11),DP(12),DP(13),DP(14),DP(15),
     1 DP(16),DP(17),DP(18),DP(19),DP(20),DP(21),DP(22),DP(23),
     1 DP(24),DP(25),DP(26),DP(27),DP(28),DP(29),DP(30),DP(31),
     1 DP(32),DP(33),DP(34),DP(35),DP(36),DP(37),DP(38),DP(39),
     1 DP(40),DP(41),DP(42),DP(43),DP(44),DP(45),DP(46),DP(47),
     1 DP(48),DP(49),DP(50))
      DMINUS=MAX(DM(1),DM(2),DM(3),DM(4),DM(5),DM(6),DM(7),
     1  DM(8),DM(9),DM(10),DM(11),DM(12),DM(13),DM(14),DM(15),
     1  DM(16),DM(17),DM(18),DM(19),DM(20),DM(21),DM(22),DM(23),
     1  DM(24),DM(25),DM(26),DM(27),DM(28),DM(29),DM(30),DM(31),
     1  DM(32),DM(33),DM(34),DM(35),DM(36),DM(37),DM(38),DM(39),
     1  DM(40),DM(41),DM(42),DM(43),DM(44),DM(45),DM(46),DM(47),
     1  DM(48),DM(49),DM(50))
      KS(it,nsiz,nshp)=MAX(DPLUS,DMINUS)
      V(it,nsiz,nshp)=DPLUS+DMINUS
c     A-D Statistic
      L=0.0
      DO 20 j=1,n
        L=L+(2.0*j-1.0)*(LOG(P(j))+LOG(1.0-P(n+1-j)))
20    CONTINUE
      AD(it,nsiz,nshp)=-n-(1/real(n))*L
c     C-VM Statistic
      T=0.0
      DO 30 i=1,n
        Z(i)=(P(i)-(2.0*i-1.0)/(2.0*real(n)))**2
        T=T+Z(i)
30    CONTINUE
      CVM(it,nsiz,nshp)=T+(1.0/(12.0*real(n)))
c     W statistic
      psum=0.0
      DO 35 i=1,n
        psum=psum+P(i)
35    CONTINUE
      pmean=psum/real(n)
      rest=n*(pmean-0.5)**2
      W(it,nsiz,nshp)=CVM(it,nsiz,nshp)-rest
      RETURN
      END
c =====================================================================
      SUBROUTINE CRTVAL
```

```
      include 'igaus.inc'
      REAL    KS1(50000),AD1(50000),CVM1(50000),STAT(0:50001),
     1        V1(50000),W1(50000),
     1        CRIT(10,24,5),dif0,slmp(0:6),bi(0:6),dif6
      INTEGER i,ntest,j,t
      IF (npct.EQ.1) pct=.80
      IF (npct.EQ.2) pct=.85
      IF (npct.EQ.3) pct=.90
      IF (npct.EQ.4) pct=.95
      IF (npct.EQ.5) pct=.99
      DO 10 i=1,nst
        KS1(i)=KS(i,nsiz,nshp)
        AD1(i)=AD(i,nsiz,nshp)
        CVM1(i)=CVM(i,nsiz,nshp)
        V1(i)=V(i,nsiz,nshp)
        W1(i)=W(i,nsiz,nshp)
10    CONTINUE
      CALL SVRGN(nst,KS1,KS1)
      CALL SVRGN(nst,AD1,AD1)
      CALL SVRGN(nst,CVM1,CVM1)
      CALL SVRGN(nst,V1,V1)
      CALL SVRGN(nst,W1,W1)
      DO 20 ntest=1,5
          IF (ntest.EQ.1) THEN
              DO 21 j=1,nst
                STAT(j)=KS1(j)
21            CONTINUE
          ELSE IF (ntest.EQ.2) THEN
            DO 22 j=1,nst
                STAT(j)=AD1(j)
22          CONTINUE
          ELSE IF (ntest.EQ.3) THEN
            DO 23 j=1,nst
               STAT(j)=CVM1(j)
23          CONTINUE
          ELSE IF (ntest.EQ.4) THEN
            DO 24 j=1,nst
               STAT(j)=V1(j)
24          CONTINUE
          ELSE IF (ntest.EQ.5) THEN
            DO 25 j=1,nst
                STAT(j)=W1(j)
25          CONTINUE
```

```
      END IF
c    Extrapolate Left Endpoint of the Test Statistic
     IF (STAT(1).EQ.STAT(2)) THEN
      dif0=STAT(3)-STAT(1)
      IF (dif0 .EQ. 0.0)  THEN
        dif0 = 0.00001
      END IF
      slmp(0)=(Y(3)-Y(1))/dif0
     ELSE dif0=STAT(2)-STAT(1)
      slmp(0)=(Y(2)-Y(1))/dif0
     END IF
     bi(0)=Y(1)-slmp(0)*STAT(1)
     STAT(0)=MAX(0.0,-bi(0)/slmp(0))
c    Extrapolate Right Endpoint of the Test Statistic
     IF (STAT(nst-1).EQ.STAT(nst)) THEN
       dif6=STAT(nst)-STAT(nst-2)
       IF (dif6.EQ.0.0) dif6=0.00001
       slmp(6)=(Y(nst)-Y(nst-2))/dif6
     ELSE
       dif6=STAT(nst)-STAT(nst-1)
       slmp(6)=(Y(nst)-Y(nst-1))/dif6
     END IF
     bi(6)=Y(nst-1)-slmp(6)*STAT(nst-1)
     STAT(nst+1)=(1.0-bi(6))/slmp(6)
c    Intepolate Critical Values Between Test Statistics
     DO 50 i=1,nst
       t=nst+1-i
       IF (Y(t).LE.pct) THEN
         IF (STAT(t).EQ.STAT(t+1)) THEN
           dif=STAT(t+1)-stat(t-1)
           IF (dif.EQ.0.0) dif=0.00001
           slmp(npct)=(Y(t+1)-Y(t-1))/dif
         ELSE
           dif=STAT(t+1)-STAT(t)
           slmp(npct)=(Y(t+1)-Y(t))/dif
         END IF
              bi(npct)=Y(t)-slmp(npct)*STAT(t)
         CRIT(nsiz,nshp,npct)=(pct-bi(npct))/slmp(npct)
         GO TO 75
       END IF
50   CONTINUE
75   IF (ntest.EQ.1) THEN
     KScrit(nsiz,nshp,npct)=CRIT(nsiz,nshp,npct)
```

```
      ELSE IF (ntest.EQ.2) THEN
        ADcrit(nsiz,nshp,npct)=CRIT(nsiz,nshp,npct)
      ELSE IF (ntest.EQ.3) THEN
        CVMcrit(nsiz,nshp,npct)=CRIT(nsiz,nshp,npct)
      ELSE IF (ntest.EQ.4) THEN
        Vcrit(nsiz,nshp,npct)=CRIT(nsiz,nshp,npct)
      ELSE IF (ntest.EQ.5) THEN
        Wcrit(nsiz,nshp,npct)=CRIT(nsiz,nshp,npct)
      END IF
20     CONTINUE
      RETURN
      END
```

Appendix B. The Fortran Program for Power Study

```
c ********************************************************************
c                        POWER STUDY
c ********************************************************************
c       This program tests the null hypothesis that sample data set follows Inverse
c    Gaussian Distribution with estimated parameter phi against the alternate hypothesis
c    that the data follow some other distribution.
c ********************************************************************
      INCLUDE 'power.inc'
      REAL*8  xsum, sum
      REAL*8  KSpow(2,5,10,6),ADpow(2,5,10,6),
     1        CVpow(2,5,10,6),Vpow(2,5,10,6),
     1        Wpow(2,5,10,6)
      REAL  KScrit1(10,11,5),ADcrit1(10,11,5),CVcrit1(10,11,5),
     1      Vcrit1(10,11,5),Wcrit1(10,11,5)
      REAL  KScrit2(10,11,5),ADcrit2(10,11,5),CVcrit2(10,11,5),
     1      Vcrit2(10,11,5),Wcrit2(10,11,5)
      REAL  KScrit3(10,11,5),ADcrit3(10,11,5),CVcrit3(10,11,5),
     1      Vcrit3(10,11,5),Wcrit3(10,11,5)
      REAL  KScrit4(10,11,5),ADcrit4(10,11,5),CVcrit4(10,11,5),
     1      Vcrit4(10,11,5),Wcrit4(10,11,5)
      REAL  KScrit5(10,11,5),ADcrit5(10,11,5),CVcrit5(10,11,5),
     1      Vcrit5(10,11,5),Wcrit5(10,11,5)
      REAL  KScrit6(10,11,5),ADcrit6(10,11,5),CVcrit6(10,11,5),
     1      Vcrit6(10,11,5),Wcrit6(10,11,5)
      REAL  KScrit7(10,11,5),ADcrit7(10,11,5),CVcrit7(10,11,5),
     1      Vcrit7(10,11,5),Wcrit7(10,11,5)
      REAL  KScrit8(10,11,5),ADcrit8(10,11,5),CVcrit8(10,11,5),
     1      Vcrit8(10,11,5),Wcrit8(10,11,5)
      REAL  KScrit9(10,11,5),ADcrit9(10,11,5),CVcrit9(10,11,5),
     1      Vcrit9(10,11,5),Wcrit9(10,11,5)
      REAL  KScrit10(10,11,5),ADcrit10(10,11,5),CVcrit10(10,11,5),
     1      Vcrit10(10,11,5),Wcrit10(10,11,5)
      INTEGER i
      CHARACTER test(5)*4, altcdf(6)*25
          test(1)='K-S'
          test(2)='A-D'
          test(3)='C-VM'
          test(4)='V  '
          test(5)='W '
          altcdf(1)= ' gamma  b=2.0 a=0.8'
          altcdf(2)= ' weibull theta=0.75 k=1.15'
```

```
        altcdf(3)=' lognormal theta=0.5 a=1.0'
        altcdf(4)='exponential theta=1'
        altcdf(5)=' uniform'
        altcdf(6)= 'IGD mu=1'
      OPEN(UNIT=7,FILE='BYUZPOWER',STATUS='new')
      PRINT*,'THE MONTE CARLO POWER STUDY'
      PRINT*,'WITH 50,000 REPETITIONS.'
      PRINT*,'Please ENTER the number for this run.'
      READ*,rep
      dseed=147231.D00
      PRINT*,'PLEASE WAIT FOR A WHILE. COMPUTATIONS IN PROGRESS!'
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES',STATUS='old',
     1        FORM='UNFORMATTED')
      DO 10 shp=1,11
        DO 12 siz=1,10
          DO 15 pct=1,5
            READ(11) KScrit1(siz,shp,pct),ADcrit1(siz,shp,pct),
     1              CVcrit1(siz,shp,pct),Vcrit1(siz,shp,pct),
     1              Wcrit1(siz,shp,pct)
15        CONTINUE
12      CONTINUE
10    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='YGUNES',STATUS='old',
     1        FORM='UNFORMATTED')
      DO 16 shp=1,11
        DO 17 siz=1,10
          DO 18 pct=1,5
            READ(11) KScrit2(siz,shp,pct),ADcrit2(siz,shp,pct),
     1              CVcrit2(siz,shp,pct),Vcrit2(siz,shp,pct),
     1              Wcrit2(siz,shp,pct)
18        CONTINUE
17      CONTINUE
16    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='Y1GUNES',STATUS='old',
     1        FORM='UNFORMATTED')
      DO 21 shp=1,11
        DO 22 siz=1,10
          DO 25 pct=1,5
            READ(11) KScrit3(siz,shp,pct),ADcrit3(siz,shp,pct),
     1              CVcrit3(siz,shp,pct),Vcrit3(siz,shp,pct),
     1              Wcrit3(siz,shp,pct)
```

```
25        CONTINUE
22      CONTINUE
21    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='Y11GUNES',STATUS='old',
     1       FORM='UNFORMATTED')
      DO 26 shp=1,11
        DO 27 siz=1,10
          DO 28 pct=1,5
            READ(11) KScrit4(siz,shp,pct),ADcrit4(siz,shp,pct),
     1             CVcrit4(siz,shp,pct),Vcrit4(siz,shp,pct),
     1             Wcrit4(siz,shp,pct)
28        CONTINUE
27      CONTINUE
26    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='Y111GUNES',STATUS='old',
     1       FORM='UNFORMATTED')
      DO 37 shp=1,11
        DO 38 siz=1,10
          DO 39 pct=1,5
            READ(11) KScrit5(siz,shp,pct),ADcrit5(siz,shp,pct),
     1             CVcrit5(siz,shp,pct),Vcrit5(siz,shp,pct),
     1             Wcrit5(siz,shp,pct)
39        CONTINUE
38      CONTINUE
37    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='Y222GUNES',STATUS='old',
     1       FORM='UNFORMATTED')
      DO 41 shp=1,11
        DO 42 siz=1,10
          DO 43 pct=1,5
            READ(11) KScrit6(siz,shp,pct),ADcrit6(siz,shp,pct),
     1             CVcrit6(siz,shp,pct),Vcrit6(siz,shp,pct),
     1             Wcrit6(siz,shp,pct)
43        CONTINUE
42      CONTINUE
41    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='Y3GUNES',STATUS='old',
     1       FORM='UNFORMATTED')
      DO 45 shp=1,11
```

```
        DO 46 siz=1,10
         DO 47 pct=1,5
          READ(11) KScrit7(siz,shp,pct),ADcrit7(siz,shp,pct),
     1              CVcrit7(siz,shp,pct),Vcrit7(siz,shp,pct),
     1              Wcrit7(siz,shp,pct)
47       CONTINUE
46      CONTINUE
45     CONTINUE
       CLOSE(11)
       OPEN(UNIT=11,ACCESS='sequential',FILE='Y31GUNES',STATUS='old',
     1          FORM='UNFORMATTED')
       DO 51 shp=1,11
        DO 52 siz=1,10
         DO 53 pct=1,5
          READ(11) KScrit8(siz,shp,pct),ADcrit8(siz,shp,pct),
     1              CVcrit8(siz,shp,pct),Vcrit8(siz,shp,pct),
     1              Wcrit8(siz,shp,pct)
53       CONTINUE
52      CONTINUE
51     CONTINUE
       CLOSE(11)
       OPEN(UNIT=11,ACCESS='sequential',FILE='Y32GUNES',STATUS='old',
     1          FORM='UNFORMATTED')
       DO 56 shp=1,11
        DO 57 siz=1,10
         DO 58 pct=1,5
          READ(11) KScrit9(siz,shp,pct),ADcrit9(siz,shp,pct),
     1              CVcrit9(siz,shp,pct),Vcrit9(siz,shp,pct),
     1              Wcrit9(siz,shp,pct)
58       CONTINUE
57      CONTINUE
56     CONTINUE
       CLOSE(11)
        OPEN(UNIT=11,ACCESS='sequential',FILE='Y33GUNES',STATUS='old',
     1          FORM='UNFORMATTED')
       DO 61 shp=1,11
        DO 62 siz=1,10
         DO 65 pct=1,5
          READ(11) KScrit10(siz,shp,pct),ADcrit10(siz,shp,pct),
     1              CVcrit10(siz,shp,pct),Vcrit10(siz,shp,pct),
     1              Wcrit10(siz,shp,pct)
65       CONTINUE
62      CONTINUE
```

```
61   CONTINUE
     CLOSE(11)

     DO 31 shp=1,11
       DO 32 siz=1,10
         DO 35 pct=1,5
       KScrit(siz,shp,pct)=(KScrit1(siz,shp,pct) + KScrit2(siz,shp,pct) +
    1                      KScrit3(siz,shp,pct) + KScrit4(siz,shp,pct) +
    1                      KScrit5(siz,shp,pct) + KScrit6(siz,shp,pct) +
    1                      KScrit7(siz,shp,pct) + KScrit8(siz,shp,pct) +
    1                      KScrit9(siz,shp,pct) + KScrit10(siz,shp,pct))/10
       ADcrit(siz,shp,pct)=(ADcrit1(siz,shp,pct) + ADcrit2(siz,shp,pct) +
    1                      ADcrit3(siz,shp,pct) + ADcrit4(siz,shp,pct) +
    1                      ADcrit5(siz,shp,pct) + ADcrit6(siz,shp,pct) +
    1                      ADcrit7(siz,shp,pct) + ADcrit8(siz,shp,pct) +
    1                      ADcrit9(siz,shp,pct) + ADcrit10(siz,shp,pct))/10
       CVcrit(siz,shp,pct)=(CVcrit1(siz,shp,pct) + CVcrit2(siz,shp,pct) +
    1                      CVcrit3(siz,shp,pct) + CVcrit4(siz,shp,pct) +
    1                      CVcrit5(siz,shp,pct) + CVcrit6(siz,shp,pct) +
    1                      CVcrit7(siz,shp,pct) + CVcrit8(siz,shp,pct) +
    1                      CVcrit9(siz,shp,pct) + CVcrit10(siz,shp,pct))/10
       Vcrit(siz,shp,pct)=(Vcrit1(siz,shp,pct) + Vcrit2(siz,shp,pct) +
    1                     Vcrit3(siz,shp,pct) + Vcrit4(siz,shp,pct) +
    1                     Vcrit5(siz,shp,pct) + Vcrit6(siz,shp,pct) +
    1                     Vcrit7(siz,shp,pct) + Vcrit8(siz,shp,pct) +
    1                     Vcrit9(siz,shp,pct) + Vcrit10(siz,shp,pct))/10
       Wcrit(siz,shp,pct)=(Wcrit1(siz,shp,pct) + Wcrit2(siz,shp,pct) +
    1                     Wcrit3(siz,shp,pct) + Wcrit4(siz,shp,pct) +
    1                     Wcrit5(siz,shp,pct) + Wcrit6(siz,shp,pct) +
    1                     Wcrit7(siz,shp,pct) + Wcrit8(siz,shp,pct) +
    1                     Wcrit9(siz,shp,pct) + Wcrit10(siz,shp,pct))/10
35        CONTINUE
32      CONTINUE
31   CONTINUE
     DO 90  nshp=1,2
       IF (nshp.EQ.1) THEN
         lambda=1.0
         WRITE(7,1001)
         WRITE(7,1004)
         WRITE(7,1005)
         WRITE(7,1007)
       ELSE IF (nshp.EQ.2) THEN
         lambda=5.0
```

```
 WRITE(7,1002)
 WRITE(7,1004)
 WRITE(7,1006)
 WRITE(7,1007)
ENDIF
 DO 80 a=1,5
  IF (a.EQ.1) THEN
    alpha=0.20
    WRITE(7,1008)
  ELSE IF (a.EQ.2) THEN
    alpha=0.15
    WRITE(7,1009)
  ELSE IF (a.EQ.3) THEN
     alpha=0.10
     WRITE(7,1010)
  ELSE IF (a.EQ.4) THEN
     alpha=0.05
     WRITE(7,1011)
  ELSE IF (a.EQ.5) THEN
      alpha=0.01
      WRITE(7,1012)
  END IF
    WRITE(7,1003)
    WRITE(7,1014)
    WRITE(7,1015)
    WRITE(7,1013)
    nsiz=0
    DO 70 n = 5, 50, 5
      CALL RNSET(dseed)
       nsiz = nsiz + 1
       DO 60  alt = 1, 6
         NKS(nshp,a,nsiz,alt)=0
         NAD(nshp,a,nsiz,alt)=0
         NCV(nshp,a,nsiz,alt)=0
         NV(nshp,a,nsiz,alt)=0
         NW(nshp,a,nsiz,alt)=0
         DO 40 it = 1,rep
          IF (alt.EQ.1)  THEN
            CALL RNGAM(n, 0.8, xx)
            CALL SSCAL(n, 2.0, xx, 1)
          ENDIF
          IF (alt.EQ.2)  THEN
            CALL RNWIB(n, 1.15, xx)
```

```
             CALL SSCAL(n, 0.75,xx, 1)
            ENDIF
            IF (alt.EQ.3) THEN
             CALL RNLNL(n, 0.5,1.0,xx)
            ENDIF
            IF  (alt.EQ.4)   THEN
              CALL  RNEXP(n, xx)
            ENDIF
            IF  (alt.EQ.5) THEN
              CALL RNUN(n,xx)
            ENDIF
            IF   (alt.EQ.6)    CALL IGDEV
            xsum = 0.0
            DO 30 i = 1, n
               xsum=xsum+xx(i)
30            CONTINUE
            muhat=xsum/real(n)
            sum=0.0
            DO 20 i = 1, n
              sum = sum + (1.0/xx(i) - 1.0/muhat)
20            CONTINUE
            lambdahat = 1.0/((1.0/real(n))*sum)
            CALL  SVRGN(n,xx,x)
            CALL  HYPCDF
            CALL  TESTAT
            CALL  COMPAR
40           CONTINUE
           KSpow(nshp,a,nsiz,alt)=NKS(nshp,a,nsiz,alt)/real(rep)
           ADpow(nshp,a,nsiz,alt)=NAD(nshp,a,nsiz,alt)/real(rep)
           CVpow(nshp,a,nsiz,alt)=NCV(nshp,a,nsiz,alt)/real(rep)
           Vpow(nshp,a,nsiz,alt)=NV(nshp,a,nsiz,alt)/real(rep)
           Wpow(nshp,a,nsiz,alt)=NW(nshp,a,nsiz,alt)/real(rep)
           PRINT*,'---------------------------------------------------'
           PRINT*,'POWER VALUES'
           PRINT*,'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
           PRINT*,'Alternate CDF: ', altcdf(alt),'  alpha = ',alpha
           print*,'n = ',n
           PRINT*,'---------------------------------------------------------'
           PRINT*,'KS rejects  =  ',NKS(nshp,a,nsiz,alt)
           PRINT*,'AD rejects  =  ',NAD(nshp,a,nsiz,alt)
           PRINT*,'CV rejects  =  ',NCV(nshp,a,nsiz,alt)
           PRINT*,'V  rejects  =  ',NV(nshp,a,nsiz,alt)
           PRINT*,'W  rejects  =  ',NW(nshp,a,nsiz,alt)
```

```
         PRINT*,'-------------------------------------------------------'
         PRINT*,'KS POWER  =  ',KSpow(nshp,a,nsiz,alt)
         PRINT*,'AD POWER  =  ',ADpow(nshp,a,nsiz,alt)
         PRINT*,'CV POWER  =  ',CVpow(nshp,a,nsiz,alt)
         PRINT*,'V  POWER  =  ',Vpow(nshp,a,nsiz,alt)
         PRINT*,'W  POWER  =  ',Wpow(nshp,a,nsiz,alt)
         PRINT*,'=================================='
         PRINT*,' '
60       CONTINUE
c        Write Power Test Results into the File "Power"
        WRITE(7,1016),n,test(1),KSpow(nshp,a,nsiz,1),
  1        KSpow(nshp,a,nsiz,2),KSpow(nshp,a,nsiz,3),
  1        KSpow(nshp,a,nsiz,4),KSpow(nshp,a,nsiz,5),
  1        Kspow(nshp,a,nsiz,6)
        WRITE(7,1016),n,test(2),ADpow(nshp,a,nsiz,1),
  1        ADpow(nshp,a,nsiz,2),ADpow(nshp,a,nsiz,3),
  1        ADpow(nshp,a,nsiz,4),ADpow(nshp,a,nsiz,5),
  1        ADpow(nshp,a,nsiz,6)
        WRITE(7,1016),n,test(3),CVpow(nshp,a,nsiz,1),
  1        CVpow(nshp,a,nsiz,2),CVpow(nshp,a,nsiz,3),
  1        CVpow(nshp,a,nsiz,4),CVpow(nshp,a,nsiz,5),
  1        CVpow(nshp,a,nsiz,6)
        WRITE(7,1016),n,test(4),Vpow(nshp,a,nsiz,1),
  1        Vpow(nshp,a,nsiz,2),Vpow(nshp,a,nsiz,3),
  1        Vpow(nshp,a,nsiz,4),Vpow(nshp,a,nsiz,5),
  1        Vpow(nshp,a,nsiz,6)
        WRITE(7,1016),n,test(5),Wpow(nshp,a,nsiz,1),
  1        Wpow(nshp,a,nsiz,2),Wpow(nshp,a,nsiz,3),
  1        Wpow(nshp,a,nsiz,4),Wpow(nshp,a,nsiz,5),
  1        Wpow(nshp,a,nsiz,6)

        WRITE(7,1013)
70      CONTINUE
80     CONTINUE
c      WRITE(7,1012)
90    CONTINUE
c ********************************************************
c Specifying the format for output
 1001 FORMAT('                TABLE I              ')
1002 FORMAT('                TABLE II             ')
1003 FORMAT(' ')
1004 FORMAT(' POWER TEST FOR INVERSE GAUSSIAN DISTRIBUTION ')
1005 FORMAT(15X,'Ho:Inverse Gaussian Distribution with mean 1.0, lambda 1.0')
```

```
1006 FORMAT(15X,'Ho:Inverse Gaussian Distribution with mean 1.0, lambda 5.0')
1007 FORMAT(15X,'Ha:The sample data follow another distribution ')
1008 FORMAT(18X,'Significance Level = 0.20  ')
1009 FORMAT(18X,'Significance Level = 0.15  ')
1010 FORMAT(18X,'Significance Level = 0.10  ')
1011 FORMAT(18X,'Significance Level = 0.05  ')
1012 FORMAT(18X,'Significance Level = 0.01  ')
1013 FORMAT(78('-'))
1014 FORMAT(78('='))
1015 FORMAT(2X,' n ',2X,'Test',4X,'GAMMA',3X,'WEIBULL',2X,'LOGN',
   1          4X,'EXP',3X,'UNIFORM',3X,'IGD')
1016 FORMAT(' ',I3,A8,6F8.4)
     CLOSE(7)
     END
c ********************************************************************
c                     END OF THE MAIN
c ********************************************************************
     SUBROUTINE IGDEV
c    Finds Inverse Gaussian Deviates and Parameters
     include 'power.inc'
     REAL s(50),r(50),P1,mu
     REAL*8 B,C,X1
     INTEGER i
     mu=1.0
     CALL RNCHI(n,1.0,r)
     CALL RNUN(n,s)
     DO 10 i=1,n
       B=mu*r(i)
       C=mu/(2.0*lambda)
       X1=mu+C*(B-SQRT(B*(4.0*lambda+B)))
       P1=mu/(mu+X1)
       xx(i)=X1
       IF (s(i).GE.P1) xx(i)=1.0/X1
10    CONTINUE
     RETURN
     END
c    ================================================================
     SUBROUTINE HYPCDF
     include 'power.inc'
     REAL V1,V2,ANORDF,P1,P2
     INTEGER i
     DO 10 i=1,n
       V1=(x(i)/muhat-1.0)*SQRT(lambdahat/x(i))
```

```
      V2=-(1.0+x(i)/muhat)*SQRT(lambdahat/x(i))
      P1=ANORDF(V1)
      P2=ANORDF(V2)
      P(i) = P1+(e**(2*lambdahat/muhat))*P2
10    CONTINUE
      RETURN
      END
c ==================================================================
      SUBROUTINE TESTAT
      include 'power.inc'
      REAL  L,T,Z(50),DP(50),DM(50),DPLUS,DMINUS
      INTEGER i,j
      DPLUS=0
      DMINUS=0
      DO 5 i=1,50
        DP(i)=0
        DM(i)=0
5     CONTINUE
c     K-S & V Statistic
      DO 10 i=1,n
        DP(i)=ABS((i/real(n))-P(i))
        DM(i)=ABS(P(i)-(i-1.0)/real(n))
10    CONTINUE
      DPLUS=MAX(DP(1),DP(2),DP(3),DP(4),DP(5),DP(6),DP(7),
     1 DP(8),DP(9),DP(10),DP(11),DP(12),DP(13),DP(14),DP(15),
     1 DP(16),DP(17),DP(18),DP(19),DP(20),DP(21),DP(22),DP(23),
     1 DP(24),DP(25),DP(26),DP(27),DP(28),DP(29),DP(30),DP(31),
     1 DP(32),DP(33),DP(34),DP(35),DP(36),DP(37),DP(38),DP(39),
     1 DP(40),DP(41),DP(42),DP(43),DP(44),DP(45),DP(46),DP(47),
     1 DP(48),DP(49),DP(50))

      DMINUS=MAX(DM(1),DM(2),DM(3),DM(4),DM(5),DM(6),DM(7),
     1  DM(8),DM(9),DM(10),DM(11),DM(12),DM(13),DM(14),DM(15),
     1  DM(16),DM(17),DM(18),DM(19),DM(20),DM(21),DM(22),DM(23),
     1  DM(24),DM(25),DM(26),DM(27),DM(28),DM(29),DM(30),DM(31),
     1  DM(32),DM(33),DM(34),DM(35),DM(36),DM(37),DM(38),DM(39),
     1  DM(40),DM(41),DM(42),DM(43),DM(44),DM(45),DM(46),DM(47),
     1  DM(48),DM(49),DM(50))
      KS(nshp,a,nsiz,alt)=MAX(DPLUS,DMINUS)
      V(nshp,a,nsiz,alt)=DPLUS+DMINUS
c     A-D Statistic
      L=0.0
      DO 20 j=1,n
```

```
      L=L+(2.0*j-1.0)*(LOG(P(j))+LOG(1.0-P(n+1-j)))
20    CONTINUE
      AD(nshp,a,nsiz,alt)=-n-(1/real(n))*L
c     C-VM Statistic
      T=0.0
      DO 30 i=1,n
       Z(i)=(P(i)-(2.0*i-1.0)/(2.0*real(n)))**2
       T=T+Z(i)
30    CONTINUE
      CV(nshp,a,nsiz,alt)=T+(1.0/(12.0*real(n)))
c     W statistic
      psum=0.0
      DO 35 i=1,n
       psum=psum+P(i)
35    CONTINUE
      pmean=psum/real(n)
      rest=n*(pmean-0.5)**2
      W(nshp,a,nsiz,alt)=CV(nshp,a,nsiz,alt)-rest
      RETURN
      END
c ==========================================================
      SUBROUTINE COMPAR
      INCLUDE 'power.inc'
      INTEGER shp
c     Compare Test Statistics versus Critical Values
      IF (nshp.EQ.1) shp=3
      IF (nshp.EQ.2) shp=11
      IF ( KS(nshp,a,nsiz,alt) .GT. KScrit(nsiz,shp,a) )
     1     NKS(nshp,a,nsiz,alt) = NKS(nshp,a,nsiz,alt)  + 1
      IF ( AD(nshp,a,nsiz,alt) .GT. ADcrit(nsiz,shp,a) )
     1     NAD(nshp,a,nsiz,alt) = NAD(nshp,a,nsiz,alt)  + 1
      IF ( CV(nshp,a,nsiz,alt) .GT. CVcrit(nsiz,shp,a) )
     1     NCV(nshp,a,nsiz,alt) = NCV(nshp,a,nsiz,alt)  + 1
      IF ( V(nshp,a,nsiz,alt) .GT. Vcrit(nsiz,shp,a) )
     1     NV(nshp,a,nsiz,alt) = NV(nshp,a,nsiz,alt)  + 1
      IF ( W(nshp,a,nsiz,alt) .GT. Wcrit(nsiz,shp,a) )
     1     NW(nshp,a,nsiz,alt) = NW(nshp,a,nsiz,alt)  + 1
      RETURN
      END
c ========================================
```

Appendix C. The Fortran Program for The Sequential Tests

```
c ********************************************************************
c                         SEQUENTIAL POWER STUDY
c ********************************************************************
c      This program tests sequentially the null hypothesis that sample data set follows
c   the Inverse Gaussian Distribution with estimated parameters mu and lambda against
c   the alternate hypothesis that the data follow some other distribution.
c ********************************************************************
      INCLUDE 'seqpow.inc'
      REAL*8 xsum, sum
      REAL    KSAD(2,10,6,5,5),KSCV(2,10,6,5,5),
     1        KSW(2,10,6,5,5),ADCV(2,10,6,5,5),
     1        ADV(2,10,6,5,5),ADW(2,10,6,5,5)
      INTEGER i,j,KScount,ADcount,CVcount,Vcount,Wcount,row,col,
     1         tes,count
      CHARACTER test(6)*6, altcdf(6)*25
           test(1)='KSAD'
           test(2)='KSCV'
           test(3)='KSW'
           test(4)='ADCV'
           test(5)='ADV '
           test(6)='ADW'
           altcdf(1)= ' gamma  b=2.0 a=0.8'
           altcdf(2)= ' weibull theta=.75 k=1.15'
           altcdf(3)=' lognormal theta=0.5 a=1.0'
           altcdf(4)='exponential theta=1'
           altcdf(5)=' uniform'
           altcdf(6)= 'IGD mu=1'

      PRINT*,'THE MONTE CARLO POWER STUDY'
      PRINT*,'WITH 50000 REPETITIONS.'
      PRINT*,'Please ENTER the number for this run.'
      READ*,rep
      dseed=548231.D00
      PRINT*,'PLEASE WAIT FOR A WHILE. COMPUTATIONS IN PROGRESS!'
      OPEN(UNIT=11,ACCESS='sequential',FILE='ALLGUNES',STATUS='old',
     1      FORM='UNFORMATTED')

      DO 10 shp=1,11
        DO 12 siz=1,10
          DO 15 pct=1,5
            READ(11) KScrit(siz,shp,pct),ADcrit(siz,shp,pct),
```

```
     1              CVcrit(siz,shp,pct),Vcrit(siz,shp,pct),
     1              Wcrit(siz,shp,pct)
15        CONTINUE
12      CONTINUE
10    CONTINUE
      CLOSE(11)
      OPEN(UNIT=10,FILE='KSADPOWER1',STATUS=' NEW')
      OPEN(UNIT=11,FILE='KSCVPOWER1',STATUS=' NEW')
      OPEN(UNIT=12,FILE='KSWPOWER1',STATUS=' NEW')
      OPEN(UNIT=13,FILE='ADCVPOWER1',STATUS=' NEW')
      OPEN(UNIT=14,FILE='ADVPOWER1',STATUS=' NEW')
      OPEN(UNIT=15,FILE='ADWPOWER1',STATUS=' NEW')
      OPEN(UNIT=16,FILE='SEQPOWGUN1',STATUS='NEW',
     1    FORM='UNFORMATTED')
      count=5
      DO 90  nshp=1,2
       IF (nshp.EQ.1) THEN
        lambda=1.0
       ELSE IF (nshp.EQ.2) THEN
        lambda=5.0
       ENDIF
       nsiz=0
          DO 70 n = 5, 50, 5
           CALL RNSET(dseed)
            nsiz = nsiz + 1
            DO 60  alt = 1, 6
              DO 61 i =1, 5
                 DO 62 j = 1, 5
                   KSAD(nshp,nsiz,alt,i,j)=0
                   KSCV(nshp,nsiz,alt,i,j)=0
                   KSW(nshp,nsiz,alt,i,j)=0
                   ADCV(nshp,nsiz,alt,i,j)=0
                   ADV(nshp,nsiz,alt,i,j)=0
                   ADW(nshp,nsiz,alt,i,j)=0
62                CONTINUE
61             CONTINUE
              DO 40 it = 1,rep
               IF (alt.EQ.1)  THEN
                CALL RNGAM(n, 0.8, xx)
                CALL SSCAL(n, 2.0, xx, 1)
               ENDIF
               IF (alt.EQ.2)  THEN
                CALL RNWIB(n, 1.15, xx)
```

```
       CALL SSCAL(n, 0.75,xx, 1)
      ENDIF
      IF (alt.EQ.3) THEN
       CALL RNLNL(n,0.5,1.0,xx)
      ENDIF
      IF  (alt.EQ.4)   THEN
        CALL  RNEXP(n, xx)
      ENDIF
      IF  (alt.EQ.5) THEN
        CALL RNUN(n,xx)
      ENDIF
      IF   (alt.EQ.6)    CALL IGDEV
      xsum = 0.0
      DO 30 i = 1, n
         xsum=xsum+xx(i)
30      CONTINUE
      muhat=xsum/real(n)
      sum=0.0
      DO 20 i = 1, n
        sum = sum + (1.0/xx(i) - 1.0/muhat)
20      CONTINUE
      lambdahat = 1.0/((1.0/real(n))*sum)
      CALL  SVRGN(n,xx,x)
      CALL  HYPCDF
      CALL  TESTAT
      IF (nshp .EQ. 1) shp = 3
      IF (nshp .EQ. 2) shp = 11
         IF (KS(nshp,nsiz,alt) .GT. KScrit(nsiz,shp,5)) KScount = 0
         IF (AD(nshp,nsiz,alt) .GT. ADcrit(nsiz,shp,5)) ADcount = 0
         IF (CV(nshp,nsiz,alt) .GT. CVcrit(nsiz,shp,5)) CVcount = 0
         IF (V(nshp,nsiz,alt) .GT. Vcrit(nsiz,shp,5)) Vcount = 0
         IF (W(nshp,nsiz,alt) .GT. Wcrit(nsiz,shp,5)) Wcount = 0

         IF (KS(nshp,nsiz,alt) .LE. KScrit(nsiz,shp,5)) KScount = 1
         IF (AD(nshp,nsiz,alt) .LE. ADcrit(nsiz,shp,5)) ADcount = 1
         IF (CV(nshp,nsiz,alt) .LE. CVcrit(nsiz,shp,5)) CVcount = 1
         IF (V(nshp,nsiz,alt) .LE. Vcrit(nsiz,shp,5)) Vcount = 1
         IF (W(nshp,nsiz,alt) .LE. Wcrit(nsiz,shp,5)) Wcount = 1
         IF (KS(nshp,nsiz,alt) .LE. KScrit(nsiz,shp,4)) KScount = 2
         IF (AD(nshp,nsiz,alt) .LE. ADcrit(nsiz,shp,4)) ADcount = 2
         IF (CV(nshp,nsiz,alt) .LE. CVcrit(nsiz,shp,4)) CVcount = 2
         IF (V(nshp,nsiz,alt) .LE. Vcrit(nsiz,shp,4)) Vcount = 2
         IF (W(nshp,nsiz,alt) .LE. Wcrit(nsiz,shp,4)) Wcount = 2
```

```
          IF (KS(nshp,nsiz,alt) .LE. KScrit(nsiz,shp,3)) KScount = 3
          IF (AD(nshp,nsiz,alt) .LE. ADcrit(nsiz,shp,3)) ADcount = 3
          IF (CV(nshp,nsiz,alt) .LE. CVcrit(nsiz,shp,3)) CVcount = 3
          IF (V(nshp,nsiz,alt) .LE. Vcrit(nsiz,shp,3)) Vcount = 3
          IF (W(nshp,nsiz,alt) .LE. Wcrit(nsiz,shp,3)) Wcount = 3
          IF (KS(nshp,nsiz,alt) .LE. KScrit(nsiz,shp,2)) KScount = 4
          IF (AD(nshp,nsiz,alt) .LE. ADcrit(nsiz,shp,2)) ADcount = 4
          IF (CV(nshp,nsiz,alt) .LE. CVcrit(nsiz,shp,2)) CVcount = 4
          IF (V(nshp,nsiz,alt) .LE. Vcrit(nsiz,shp,2)) Vcount = 4
          IF (W(nshp,nsiz,alt) .LE. Wcrit(nsiz,shp,2)) Wcount = 4
          IF (KS(nshp,nsiz,alt) .LE. KScrit(nsiz,shp,1)) KScount = 5
          IF (AD(nshp,nsiz,alt) .LE. ADcrit(nsiz,shp,1)) ADcount = 5
          IF (CV(nshp,nsiz,alt) .LE. CVcrit(nsiz,shp,1)) CVcount = 5
          IF (V(nshp,nsiz,alt) .LE. Vcrit(nsiz,shp,1)) Vcount = 5
          IF (W(nshp,nsiz,alt) .LE. Wcrit(nsiz,shp,1)) Wcount = 5
        DO 105 i=1, KScount
          DO 110 j=1, Adcount
            KSAD(nshp,nsiz,alt,i,j)= KSAD(nshp,nsiz,alt,i,j)+1
110       CONTINUE
105     CONTINUE
        DO 115 i=1, KScount
          DO 120 j=1, CVcount
            KSCV(nshp,nsiz,alt,i,j)= KSCV(nshp,nsiz,alt,i,j)+1
120       CONTINUE
115     CONTINUE
        DO 125 i=1, KScount
          DO 130 j=1, Wcount
            KSW(nshp,nsiz,alt,i,j)= KSW(nshp,nsiz,alt,i,j)+1
130       CONTINUE
125     CONTINUE
        DO 135 i=1, ADcount
          DO 140 j=1, CVcount
            ADCV(nshp,nsiz,alt,i,j)= ADCV(nshp,nsiz,alt,i,j)+1
140       CONTINUE
135     CONTINUE
        DO 145 i=1, ADcount
          DO 150 j=1, Vcount
            ADV(nshp,nsiz,alt,i,j)= ADV(nshp,nsiz,alt,i,j)+1
150       CONTINUE
145     CONTINUE
        DO 155 i=1, ADcount
          DO 160 j=1, Wcount
            ADW(nshp,nsiz,alt,i,j)= ADW(nshp,nsiz,alt,i,j)+1
```

```
160          CONTINUE
155        CONTINUE
40       CONTINUE
         DO 106 i=1, count
           DO 111 j=1, count
             KSAD(nshp,nsiz,alt,i,j)=1-( KSAD(nshp,nsiz,alt,i,j))/rep
111        CONTINUE
106      CONTINUE
         DO 116 i=1, count
           DO 121 j=1, count
             KSCV(nshp,nsiz,alt,i,j)= 1-(KSCV(nshp,nsiz,alt,i,j))/rep
121        CONTINUE
116      CONTINUE
         DO 126 i=1, count
           DO 131 j=1, count
             KSW(nshp,nsiz,alt,i,j)= 1-(KSW(nshp,nsiz,alt,i,j))/rep
131        CONTINUE
126      CONTINUE
         DO 136 i=1, count
           DO 141 j=1, count
             ADCV(nshp,nsiz,alt,i,j)= 1-(ADCV(nshp,nsiz,alt,i,j))/rep
141        CONTINUE
136      CONTINUE
         DO 146 i=1, count
           DO 151 j=1, count
             ADV(nshp,nsiz,alt,i,j)= 1-(ADV(nshp,nsiz,alt,i,j))/rep
151        CONTINUE
146      CONTINUE
         DO 156 i=1, count
           DO 161 j=1, count
             ADW(nshp,nsiz,alt,i,j)= 1-(ADW(nshp,nsiz,alt,i,j))/rep
161        CONTINUE
156      CONTINUE
       DO 170 tes=1, 6
        PRINT*,'-----------------------------------------------------'
        IF (tes .EQ. 1) PRINT*,'POWER OF KS-AD SEQUENTIAL TEST'
        IF (tes .EQ. 2) PRINT*,'POWER OF KS-CV SEQUENTIAL TEST'
        IF (tes .EQ. 3) PRINT*,'POWER OF KS-W SEQUENTIAL TEST'
        IF (tes .EQ. 4) PRINT*,'POWER OF AD-CV SEQUENTIAL TEST'
        IF (tes .EQ. 5) PRINT*,'POWER OF AD-V SEQUENTIAL TEST'
        IF (tes .EQ. 6) PRINT*,'POWER OF AD-W SEQUENTIAL TEST'
        PRINT*,'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
        PRINT*,'Alternate CDF: ', altcdf(alt)
```

```
PRINT*,'n = ',n

 IF (tes .EQ. 1) THEN
   WRITE(10,*)' POWER OF KS-AD SEQUENTIAL TEST'
   WRITE(10,*)'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
   WRITE(10,*)'Alternate CDF: ', altcdf(alt)
   WRITE(10,*)'n = ',n
   WRITE(10,1001)
 ENDIF
IF (tes .EQ. 2) THEN
   WRITE(11,*)' POWER OF KS-CV SEQUENTIAL TEST'
   WRITE(11,*)'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
   WRITE(11,*)'Alternate CDF: ', altcdf(alt)
   WRITE(11,*)'n = ',n
   WRITE(11,1001)
 ENDIF
 IF (tes .EQ. 3) THEN
   WRITE(12,*)' POWER OF KS-W SEQUENTIAL TEST'
   WRITE(12,*)'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
   WRITE(12,*)'Alternate CDF: ', altcdf(alt)
   WRITE(12,*)'n = ',n
   WRITE(12,1001)
 ENDIF
 IF (tes .EQ. 4) THEN
   WRITE(13,*)' POWER OF AD-CV SEQUENTIAL TEST'
   WRITE(13,*)'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
   WRITE(13,*)'Alternate CDF: ', altcdf(alt)
   WRITE(13,*)'n = ',n
   WRITE(13,1001)
 ENDIF
 IF (tes .EQ. 5) THEN
   WRITE(14,*)' POWER OF AD-V SEQUENTIAL TEST'
   WRITE(14,*)'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
   WRITE(14,*)'Alternate CDF: ', altcdf(alt)
   WRITE(14,*)'n = ',n
   WRITE(14,1001)
 ENDIF
 IF (tes .EQ. 6) THEN
   WRITE(15,*)' POWER OF AD-W SEQUENTIAL TEST'
   WRITE(15,*)'H0: Inverse Gaussian with mean = 1,  lambda = ',lambda
   WRITE(15,*)'Alternate CDF: ', altcdf(alt)
   WRITE(15,*)'n = ',n
   WRITE(15,1001)
```

```
        ENDIF
       IF(tes .EQ.1) THEN
        PRINT 1000,((KSAD(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
         WRITE(10,1000)((KSAD(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
        WRITE(16)((KSAD(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
         WRITE(10,1001)

       ENDIF
       IF(tes .EQ.2) THEN
        PRINT 1000,((KSCV(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
         WRITE(11,1000)((KSCV(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
        WRITE(16)((KSCV(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)

         WRITE(11,1001)
       ENDIF
       IF(tes .EQ.3) THEN
        PRINT 1000,((KSW(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
         WRITE(12,1000)((KSW(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
        WRITE(16)((KSW(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
         WRITE(12,1001)

      ENDIF
       IF(tes .EQ.4) THEN
        PRINT 1000,((ADCV(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)
         WRITE(13,1000)((ADCV(nshp,nsiz,alt,row,col),col=1,5),
     1                 row=1,5)
        WRITE(16)((ADCV(nshp,nsiz,alt,row,col),col=1,5),
     1                row=1,5)

         WRITE(13,1001)
       ENDIF
       IF(tes .EQ.5) THEN
        PRINT 1000,((ADV(nshp,nsiz,alt,row,col),col=1,5),
```

```
   1                    row=1,5)
            WRITE(14,1000)((ADV(nshp,nsiz,alt,row,col),col=1,5),
    1                    row=1,5)
           WRITE(16)((ADV(nshp,nsiz,alt,row,col),col=1,5),
   1                    row=1,5)
            WRITE(14,1001)
          ENDIF
          IF(tes .EQ.6) THEN
           PRINT 1000,((ADW(nshp,nsiz,alt,row,col),col=1,5),
   1                    row=1,5)
            WRITE(15,1000)((ADW(nshp,nsiz,alt,row,col),col=1,5),
    1                    row=1,5)
           WRITE(16)((ADW(nshp,nsiz,alt,row,col),col=1,5),
   1                    row=1,5)
            WRITE(15,1001)
          ENDIF

170         CONTINUE

60         CONTINUE
70        CONTINUE
90    CONTINUE
c *******************************************************
c Specifying the format for output
1000  FORMAT(3x,4(F10.5,' & '),F10.5,' \\\zline'/)
1001  FORMAT('------------------------------------------------')
1002  FORMAT(' ')
1003  FORMAT('  ')
1004  FORMAT(' POWER TEST FOR INVERSE GAUSSIAN DISTRIBUTION ')
1005  FORMAT(15X,'Ho:Inverse Gaussian Distribution with mean 1.0, lambda 1.0')
1006  FORMAT(15X,'Ho:Inverse Gaussian Distribution with mean 1.0, lambda 5.0')
1007  FORMAT(15X,'Ha:The sample data follow another distribution ')
1008  FORMAT(18X,'Significance Level = 0.20  ')
1009  FORMAT(18X,'Significance Level = 0.15  ')
1010  FORMAT(18X,'Significance Level = 0.10  ')
1011  FORMAT(18X,'Significance Level = 0.05  ')
1012  FORMAT(18X,'Significance Level = 0.01  ')
1013  FORMAT(78('-'))
1014  FORMAT(78('='))
1015  FORMAT(2X,' n ',2X,'Test',4X,'GAMMA',3X,'WEIBULL',2X,'LOGN',
   1          4X,'EXP',3X,'UNIFORM',3X,'IGD')
1016  FORMAT(' ',I3,A8,5F10.5)
      CLOSE(10)
```

```
      CLOSE(11)
      CLOSE(12)
      CLOSE(13)
      CLOSE(14)
      CLOSE(15)
      CLOSE(16)
      END
c ************************************************************************
c                         END OF THE MAIN
c ************************************************************************
      SUBROUTINE IGDEV
c     Finds Inverse Gaussian Deviates and Parameters
      include 'seqpow.inc'
      REAL s(50),r(50),P1,mu
      REAL*8 B,C,X1
      INTEGER i
      mu=1.0
      CALL RNCHI(n,1.0,r)
      CALL RNUN(n,s)
      DO 10 i=1,n
        B=mu*r(i)
        C=mu/(2.0*lambda)
        X1=mu+C*(B-SQRT(B*(4.0*lambda+B)))
        P1=mu/(mu+X1)
        xx(i)=X1
        IF (s(i).GE.P1) xx(i)=1.0/X1
10    CONTINUE
      RETURN
      END
c     ================================================================
      SUBROUTINE HYPCDF
      include 'seqpow.inc'
      REAL V1,V2,ANORDF,P1,P2
      INTEGER i
      DO 10 i=1,n
        V1=(x(i)/muhat-1.0)*SQRT(lambdahat/x(i))
        V2=-(1.0+x(i)/muhat)*SQRT(lambdahat/x(i))
        P1=ANORDF(V1)
        P2=ANORDF(V2)
        P(i) = P1+(e**(2*lambdahat/muhat))*P2
10    CONTINUE
      RETURN
      END
```

```
c ==========================================================
      SUBROUTINE TESTAT
      include 'seqpow.inc'
      REAL  L,T,Z(50),DP(50),DM(50),DPLUS,DMINUS
      INTEGER i,j
      DPLUS=0
      DMINUS=0
      DO 5 i=1,50
        DP(i)=0
        DM(i)=0
5      CONTINUE
c     K-S & V Statistic
      DO 10 i=1,n
        DP(i)=ABS((i/real(n))-P(i))
        DM(i)=ABS(P(i)-(i-1.0)/real(n))
10     CONTINUE
      DPLUS=MAX(DP(1),DP(2),DP(3),DP(4),DP(5),DP(6),DP(7),
     1 DP(8),DP(9),DP(10),DP(11),DP(12),DP(13),DP(14),DP(15),
     1 DP(16),DP(17),DP(18),DP(19),DP(20),DP(21),DP(22),DP(23),
     1 DP(24),DP(25),DP(26),DP(27),DP(28),DP(29),DP(30),DP(31),
     1 DP(32),DP(33),DP(34),DP(35),DP(36),DP(37),DP(38),DP(39),
     1 DP(40),DP(41),DP(42),DP(43),DP(44),DP(45),DP(46),DP(47),
     1 DP(48),DP(49),DP(50))

      DMINUS=MAX(DM(1),DM(2),DM(3),DM(4),DM(5),DM(6),DM(7),
     1  DM(8),DM(9),DM(10),DM(11),DM(12),DM(13),DM(14),DM(15),
     1  DM(16),DM(17),DM(18),DM(19),DM(20),DM(21),DM(22),DM(23),
     1  DM(24),DM(25),DM(26),DM(27),DM(28),DM(29),DM(30),DM(31),
     1  DM(32),DM(33),DM(34),DM(35),DM(36),DM(37),DM(38),DM(39),
     1  DM(40),DM(41),DM(42),DM(43),DM(44),DM(45),DM(46),DM(47),
     1  DM(48),DM(49),DM(50))
       KS(nshp,nsiz,alt)=MAX(DPLUS,DMINUS)
      V(nshp,nsiz,alt)=DPLUS+DMINUS
c     A-D Statistic
      L=0.0
      DO 20 j=1,n
        L=L+(2.0*j-1.0)*(LOG(P(j))+LOG(1.0-P(n+1-j)))
20     CONTINUE
      AD(nshp,nsiz,alt)=-n-(1/real(n))*L
c     C-VM Statistic
      T=0.0
      DO 30 i=1,n
       Z(i)=(P(i)-(2.0*i-1.0)/(2.0*real(n)))**2
```

```
       T=T+Z(i)
30     CONTINUE
      CV(nshp,nsiz,alt)=T+(1.0/(12.0*real(n)))
c      W statistic
      psum=0.0
      DO 35 i=1,n
        psum=psum+P(i)
35     CONTINUE
      pmean=psum/real(n)
      rest=n*(pmean-0.5)**2
      W(nshp,nsiz,alt)=CV(nshp,nsiz,alt)-rest
      RETURN
      END
```

```
c ***********************************************************
c                    FIVEHUDREDTHAUSAND
c************************************************************
c       This Program combines 10 critical value output files which were obtained
c  by running 50,000 repetitions and different seed numbers. Then it outputs
c  combined critical value tables with 500,000 repetitions.
c ***********************************************************
      REAL KScrit(10,24,5),ADcrit(10,24,5),CVcrit(10,24,5),
     1      Vcrit(10,24,5),Wcrit(10,24,5),pct,phi,lambda
      REAL KScrit1(10,24,5),ADcrit1(10,24,5),CVcrit1(10,24,5),
     1      Vcrit1(10,24,5),Wcrit1(10,24,5)
      REAL KScrit2(10,24,5),ADcrit2(10,24,5),CVcrit2(10,24,5),
     1      Vcrit2(10,24,5),Wcrit2(10,24,5)
      REAL KScrit3(10,24,5),ADcrit3(10,24,5),CVcrit3(10,24,5),
     1      Vcrit3(10,24,5),Wcrit3(10,24,5)
      REAL KScrit4(10,24,5),ADcrit4(10,24,5),CVcrit4(10,24,5),
     1      Vcrit4(10,24,5),Wcrit4(10,24,5)
      REAL KScrit5(10,24,5),ADcrit5(10,24,5),CVcrit5(10,24,5),
     1      Vcrit5(10,24,5),Wcrit5(10,24,5)
      REAL KScrit6(10,24,5),ADcrit6(10,24,5),CVcrit6(10,24,5),
     1      Vcrit6(10,24,5),Wcrit6(10,24,5)
      REAL KScrit7(10,24,5),ADcrit7(10,24,5),CVcrit7(10,24,5),
     1      Vcrit7(10,24,5),Wcrit7(10,24,5)
      REAL KScrit8(10,24,5),ADcrit8(10,24,5),CVcrit8(10,24,5),
     1      Vcrit8(10,24,5),Wcrit8(10,24,5)
      REAL KScrit9(10,24,5),ADcrit9(10,24,5),CVcrit9(10,24,5),
     1      Vcrit9(10,24,5),Wcrit9(10,24,5)
      REAL KScrit10(10,24,5),ADcrit10(10,24,5),CVcrit10(10,24,5),
     1      Vcrit10(10,24,5),Wcrit10(10,24,5)
      INTEGER  nshp, nsiz, npct,n, shape
       OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES1',STATUS='old',
     1      FORM='UNFORMATTED')
      DO 10 shp=1,24
        DO 12 siz=1,10
          DO 15 pct=1,5
            READ(11) KScrit1(siz,shp,pct),ADcrit1(siz,shp,pct),
     1              CVcrit1(siz,shp,pct),Vcrit1(siz,shp,pct),
     1              Wcrit1(siz,shp,pct)
15        CONTINUE
12      CONTINUE
10    CONTINUE
```

```
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES2',STATUS='old',
     1    FORM='UNFORMATTED')
      DO 16 shp=1,24
        DO 17 siz=1,10
          DO 18 pct=1,5
            READ(11) KScrit2(siz,shp,pct),ADcrit2(siz,shp,pct),
     1            CVcrit2(siz,shp,pct),Vcrit2(siz,shp,pct),
     1            Wcrit2(siz,shp,pct)
18        CONTINUE
17      CONTINUE
16    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES3',STATUS='old',
     1    FORM='UNFORMATTED')
      DO 21 shp=1,24
        DO 22 siz=1,10
          DO 25 pct=1,5
            READ(11) KScrit3(siz,shp,pct),ADcrit3(siz,shp,pct),
     1            CVcrit3(siz,shp,pct),Vcrit3(siz,shp,pct),
     1            Wcrit3(siz,shp,pct)
25        CONTINUE
22      CONTINUE
21    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES4',STATUS='old',
     1    FORM='UNFORMATTED')
      DO 26 shp=1,24
        DO 27 siz=1,10
          DO 28 pct=1,5
            READ(11) KScrit4(siz,shp,pct),ADcrit4(siz,shp,pct),
     1            CVcrit4(siz,shp,pct),Vcrit4(siz,shp,pct),
     1            Wcrit4(siz,shp,pct)
28        CONTINUE
27      CONTINUE
26    CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES5',STATUS='old',
     1    FORM='UNFORMATTED')
      DO 37 shp=1,24
        DO 38 siz=1,10
          DO 39 pct=1,5
            READ(11) KScrit5(siz,shp,pct),ADcrit5(siz,shp,pct),
```

```
     1              CVcrit5(siz,shp,pct),Vcrit5(siz,shp,pct),
     1              Wcrit5(siz,shp,pct)
39        CONTINUE
38       CONTINUE
37     CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES6',STATUS='old',
     1   FORM='UNFORMATTED')
      DO 41 shp=1,24
        DO 42 siz=1,10
          DO 43 pct=1,5
            READ(11) KScrit6(siz,shp,pct),ADcrit6(siz,shp,pct),
     1              CVcrit6(siz,shp,pct),Vcrit6(siz,shp,pct),
     1              Wcrit6(siz,shp,pct)
43        CONTINUE
42       CONTINUE
41     CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES7',STATUS='old',
     1   FORM='UNFORMATTED')
      DO 45 shp=1,24
        DO 46 siz=1,10
          DO 47 pct=1,5
            READ(11) KScrit7(siz,shp,pct),ADcrit7(siz,shp,pct),
     1              CVcrit7(siz,shp,pct),Vcrit7(siz,shp,pct),
     1              Wcrit7(siz,shp,pct)
47        CONTINUE
46       CONTINUE
45     CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES8',STATUS='old',
     1   FORM='UNFORMATTED')
      DO 51 shp=1,24
        DO 52 siz=1,10
          DO 53 pct=1,5
            READ(11) KScrit8(siz,shp,pct),ADcrit8(siz,shp,pct),
     1              CVcrit8(siz,shp,pct),Vcrit8(siz,shp,pct),
     1              Wcrit8(siz,shp,pct)
53        CONTINUE
52       CONTINUE
51     CONTINUE
      CLOSE(11)
      OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES9',STATUS='old',
```

```
     1          FORM='UNFORMATTED')
      DO 56 shp=1,24
        DO 57 siz=1,10
          DO 58 pct=1,5
            READ(11) KScrit9(siz,shp,pct),ADcrit9(siz,shp,pct),
     1            CVcrit9(siz,shp,pct),Vcrit9(siz,shp,pct),
     1            Wcrit9(siz,shp,pct)
58        CONTINUE
57      CONTINUE
56    CONTINUE
      CLOSE(11)
       OPEN(UNIT=11,ACCESS='sequential',FILE='GUNES10',STATUS='old',
     1          FORM='UNFORMATTED')
      DO 61 shp=1,24
        DO 62 siz=1,10
          DO 65 pct=1,5
            READ(11) KScrit10(siz,shp,pct),ADcrit10(siz,shp,pct),
     1            CVcrit10(siz,shp,pct),Vcrit10(siz,shp,pct),
     1            Wcrit10(siz,shp,pct)
65        CONTINUE
62      CONTINUE
61    CONTINUE
      CLOSE(11)

      DO 31 shp=1,24
        DO 32 siz=1,10
          DO 35 pct=1,5
       KScrit(siz,shp,pct)=(KScrit1(siz,shp,pct) + KScrit2(siz,shp,pct) +
     1                KScrit3(siz,shp,pct) + KScrit4(siz,shp,pct) +
     1                KScrit5(siz,shp,pct) + KScrit6(siz,shp,pct) +
     1                KScrit7(siz,shp,pct) + KScrit8(siz,shp,pct) +
     1                KScrit9(siz,shp,pct) + KScrit10(siz,shp,pct))/10
       ADcrit(siz,shp,pct)=(ADcrit1(siz,shp,pct) + ADcrit2(siz,shp,pct) +
     1                ADcrit3(siz,shp,pct) + ADcrit4(siz,shp,pct) +
     1                ADcrit5(siz,shp,pct) + ADcrit6(siz,shp,pct) +
     1                ADcrit7(siz,shp,pct) + ADcrit8(siz,shp,pct) +
     1                ADcrit9(siz,shp,pct) + ADcrit10(siz,shp,pct))/10
       CVcrit(siz,shp,pct)=(CVcrit1(siz,shp,pct) + CVcrit2(siz,shp,pct) +
     1                CVcrit3(siz,shp,pct) + CVcrit4(siz,shp,pct) +
     1                CVcrit5(siz,shp,pct) + CVcrit6(siz,shp,pct) +
     1                CVcrit7(siz,shp,pct) + CVcrit8(siz,shp,pct) +
     1                CVcrit9(siz,shp,pct) + CVcrit10(siz,shp,pct))/10
       Vcrit(siz,shp,pct)=(Vcrit1(siz,shp,pct) + Vcrit2(siz,shp,pct) +
```

```
     1              Vcrit3(siz,shp,pct) + Vcrit4(siz,shp,pct) +
     1              Vcrit5(siz,shp,pct) + Vcrit6(siz,shp,pct) +
     1              Vcrit7(siz,shp,pct) + Vcrit8(siz,shp,pct) +
     1              Vcrit9(siz,shp,pct) + Vcrit10(siz,shp,pct))/10
      Wcrit(siz,shp,pct)=(Wcrit1(siz,shp,pct) + Wcrit2(siz,shp,pct) +
     1              Wcrit3(siz,shp,pct) + Wcrit4(siz,shp,pct) +
     1              Wcrit5(siz,shp,pct) + Wcrit6(siz,shp,pct) +
     1              Wcrit7(siz,shp,pct) + Wcrit8(siz,shp,pct) +
     1              Wcrit9(siz,shp,pct) + Wcrit10(siz,shp,pct))/10
35        CONTINUE
32      CONTINUE
31    CONTINUE
c     Open Output File to Store Combined Critical Values
      OPEN(UNIT=7, FILE='COMIGAUS',STATUS='new')
      DO 100 nshp=1, 24
        shape=nshp
        IF (shape.EQ.1) lambda=0.001
        IF (shape.EQ.2) lambda=0.5
        IF (shape.EQ.3) lambda=1.0
        IF (shape.EQ.4) lambda=1.5
        IF (shape.EQ.5) lambda=2.0
        IF (shape.EQ.6) lambda=2.5
        IF (shape.EQ.7) lambda=3.0
        IF (shape.EQ.8) lambda=3.5
        IF (shape.EQ.9) lambda=4.0
        IF (shape.EQ.10) lambda=4.5
        IF (shape.EQ.11) lambda=5.0
        IF (shape.EQ.12) lambda=10.0
        IF (shape.EQ.13) lambda=15.0
        IF (shape.EQ.14) lambda=20.0
        IF (shape.EQ.15) lambda=25.0
        IF (shape.EQ.16) lambda=30.0
        IF (shape.EQ.17) lambda=35.0
        IF (shape.EQ.18) lambda=40.0
        IF (shape.EQ.19) lambda=50.0
        IF (shape.EQ.20) lambda=60.0
        IF (shape.EQ.21) lambda=70.0
        IF (shape.EQ.22) lambda=80.0
        IF (shape.EQ.23) lambda=100.0
        IF (shape.EQ.24) lambda=1000.0
        phi=lambda
c       Write Headings for Output Data
        WRITE(7,1111)
```

```
      WRITE(7,1112)
      WRITE(7,1111)
      WRITE(7,1113)
      DO 110 nsiz=1,10
         n=nsiz*5
         DO 120 npct=1,5
           IF (npct.EQ.1) pct=.80
           IF (npct.EQ.2) pct=.85
           IF (npct.EQ.3) pct=.90
           IF (npct.EQ.4) pct=.95
           IF (npct.EQ.5) pct=.99
           WRITE(7,1115),1.0-pct, n, lambda,KScrit(nsiz,nshp,npct),
    1           ADcrit(nsiz,nshp,npct), CVcrit(nsiz,nshp,npct),
    1           Vcrit(nsiz,nshp,npct), Wcrit(nsiz,nshp,npct)
  120      CONTINUE
  110    CONTINUE
  100 CONTINUE
c      SPECIFY FORMAT FOR OUTPUT
 1111    FORMAT('                                    ')
 1112    FORMAT('    INVERSE GAUSSIAN CRITICAL VALUES      ')
 1113    FORMAT('alpha ','&', x,'n ','&',2x,'Phi ','&',5x,'KS ','&',6x,
    1       'AD ','&',6x,'CVM ','&',7x,'V ','&',7x,'W ','\\hline')
 1115    FORMAT('  ',T3,F3.2,' &',I3,' &',F6.3,' &',F8.4,' &',F8.4,
    1      ' &',F8.4,' &',F8.4,' &',F8.4,' //hline')
 1116     FORMAT('  ',T3,F3.2,I4,8F8.4)
 1117     FORMAT('1',36X,'Table VI')
 1118     FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED K-S TEST')
 1119     FORMAT('1',36X,'Table VII')
 1121     FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED A-D TEST')
 1122     FORMAT('1',35X,'Table VIII')
 1123     FORMAT(19X,'CRITICAL VALUES FOR THE MODIFIED C-VM TEST')
 1124     FORMAT('alpha',3X,'n',3X,'0.001',5X,'0.5',5X,'1',5X,
    1      ' 2.0',5X,'3.0',5X,'5.0',5X,'10',5X,'100')
 1125     FORMAT(79('-'))
 1126     FORMAT(37X,'TABLE VIII')
 1127     FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED V TEST')
 1128     FORMAT(37X,'TABLE IX')
 1129     FORMAT(20X,'CRITICAL VALUES FOR THE MODIFIED W TEST')
       END
c ***********************************************************************
```

```
c ******************************************************************
c          FORMATING OF THE DATA FOR REGRESSION
c ******************************************************************
      INTEGER siz, shp, pct
      REAL   KS(15,24,5),AD(15,24,5),CV(15,24,5),V(15,24,5),W(15,24,5)
11    FORMAT('            KS CRITICAL VALUES             ')
12    FORMAT('            AD CRITICAL VALUES             ')
13    FORMAT('            CV CRITICAL VALUES             ')
14    FORMAT('            V CRITICAL VALUES              ')
15    FORMAT('            W CRITICAL VALUES              ')
16    FORMAT('---------------------------------------------------------------------')
17    FORMAT ('       ', 5F8.4)

      OPEN(UNIT=11,ACCESS='SEQUENTIAL',FILE='GUNES',STATUS='OLD      1
',FORM='UNFORMATTED')
      DO 10 shp=1, 24
          DO 20 siz=1, 10
              DO 30 pct=1, 5
                  READ (11) KS(siz,shp,pct),AD(siz,shp,pct),CV(siz,shp,pct),
     1                 V(siz,shp,pct),W(siz,shp,pct)
30            CONTINUE
20        CONTINUE
10    CONTINUE
      CLOSE(11)
      OPEN (UNIT=11,ACCESS='SEQUENTIAL',FILE='GUNES',
     1        STATUS='OLD',FORM='UNFORMATTED')
       DO 40 shp=1, 24
          DO 50 siz=1, 5
              DO 60 pct=1, 5
                  READ (11) KS(siz+10,shp,pct),AD(siz+10,shp,pct),
     1                 CV(siz+10,shp,pct),
     1                 V(siz+10,shp,pct),W(siz+10,shp,pct)
60            CONTINUE
50        CONTINUE
40     CONTINUE
       CLOSE(11)
       OPEN(UNIT=55,FILE='REGKS',STATUS='NEW')
       OPEN(UNIT=56,FILE='REGAD',STATUS='NEW')
       OPEN(UNIT=57,FILE='REGCV',STATUS='NEW')
       OPEN(UNIT=58,FILE='REGV',STATUS='NEW')
       OPEN(UNIT=59,FILE='REGW',STATUS='NEW')
       WRITE(55,11)
       WRITE(56,12)
```

```
      WRITE(57,13)
      WRITE(58,14)
      WRITE(59,15)
       DO 70 siz=1,15
          WRITE(55,16)
          WRITE(56,16)
          WRITE(57,16)
          WRITE(58,16)
          WRITE(59,16)
          DO  80 shp=1, 24
             WRITE(55,17) KS(siz,shp,1),KS(siz,shp,2),KS(siz,shp,3),
  1                        KS(siz,shp,4),KS(siz,shp,5)
             WRITE(56,17) AD(siz,shp,1),AD(siz,shp,2),AD(siz,shp,3),
  1                        AD(siz,shp,4),AD(siz,shp,5)
             WRITE(57,17) CV(siz,shp,1),CV(siz,shp,2),CV(siz,shp,3),
  1                        CV(siz,shp,4),CV(siz,shp,5)
             WRITE(58,17)  V(siz,shp,1), V(siz,shp,2), V(siz,shp,3),
  1                        V(siz,shp,4), V(siz,shp,5)
             WRITE(59,17)  W(siz,shp,1), W(siz,shp,2), W(siz,shp,3),
  1                        W(siz,shp,4), W(siz,shp,5)
80        CONTINUE
70     CONTINUE
       CLOSE(55)
       CLOSE(56)
       CLOSE(57)
       CLOSE(58)
       CLOSE(59)
       END
c ********************************************************************
```

Appendix E. Critical Value Tables

Table E.1 Critical Values: Sample size N, phi = 0.001, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	0.001	0.4751	1.6735	0.3206	0.7503	0.0930
.15	5	0.001	0.4881	1.7990	0.3477	0.7763	0.1009
.10	5	0.001	0.5085	1.9609	0.3816	0.8169	0.1121
.05	5	0.001	0.5490	2.2009	0.4305	0.8981	0.1313
.01	5	0.001	0.6046	2.6304	0.5137	1.0091	0.1678
.20	10	0.001	0.4749	3.5623	0.7225	0.8497	0.1813
.15	10	0.001	0.4864	3.7715	0.7676	0.8728	0.1951
.10	10	0.001	0.5002	4.0308	0.8240	0.9003	0.2130
.05	10	0.001	0.5283	4.4162	0.9060	0.9566	0.2417
.01	10	0.001	0.5799	5.1380	1.0547	1.0598	0.3007
.20	15	0.001	0.4751	5.4918	1.1347	0.8834	0.2786
.15	15	0.001	0.4850	5.7511	1.1915	0.9034	0.2965
.10	15	0.001	0.4966	6.0777	1.2628	0.9266	0.3192
.05	15	0.001	0.5187	6.5599	1.3663	0.9707	0.3544
.01	15	0.001	0.5618	7.4645	1.5569	1.0569	0.4267
.20	20	0.001	0.4757	7.4205	1.5481	0.9014	0.3780
.15	20	0.001	0.4845	7.7247	1.6151	0.9189	0.3987
.10	20	0.001	0.4946	8.1068	1.6978	0.9392	0.4253
.05	20	0.001	0.5131	8.6629	1.8175	0.9762	0.4665
.01	20	0.001	0.5486	9.7170	2.0413	1.0471	0.5474
.20	25	0.001	0.4764	9.3506	1.9623	0.9127	0.4786
.15	25	0.001	0.4841	9.6949	2.0373	0.9282	0.5021
.10	25	0.001	0.4934	10.1233	2.1313	0.9468	0.5320
.05	25	0.001	0.5093	10.7413	2.2652	0.9785	0.5778
.01	25	0.001	0.5406	11.9240	2.5159	1.0412	0.6687

Table E.2 Critical Values: Sample size N, phi = 0.001, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	0.001	0.4771	11.2917	2.3786	0.9209	0.5797
.15	30	0.001	0.4843	11.6668	2.4613	0.9353	0.6057
.10	30	0.001	0.4928	12.1346	2.5630	0.9522	0.6389
.05	30	0.001	0.5068	12.8271	2.7132	0.9803	0.6884
.01	30	0.001	0.5346	14.0932	2.9832	1.0358	0.7849
.20	35	0.001	0.4778	13.2268	2.7951	0.9269	0.6816
.15	35	0.001	0.4844	13.6293	2.8841	0.9402	0.7095
.10	35	0.001	0.4922	14.1392	2.9941	0.9558	0.7453
.05	35	0.001	0.5047	14.8669	3.1522	0.9809	0.7987
.01	35	0.001	0.5293	16.2540	3.4484	1.0300	0.9025
.20	40	0.001	0.4786	15.1700	3.2122	0.9322	0.7839
.15	40	0.001	0.4847	15.5997	3.3068	0.9444	0.8139
.10	40	0.001	0.4919	16.1357	3.4231	0.9589	0.8513
.05	40	0.001	0.5034	16.9207	3.5933	0.9818	0.9078
.01	40	0.001	0.5257	18.3930	3.9090	1.0263	1.0164
.20	45	0.001	0.4790	17.0981	3.6257	0.9357	0.8851
.15	45	0.001	0.4848	17.5542	3.7267	0.9475	0.9173
.10	45	0.001	0.4917	18.1173	3.8498	0.9611	0.9572
.05	45	0.001	0.5022	18.9559	4.0301	0.9822	1.0165
.01	45	0.001	0.5226	20.4992	4.3622	1.0230	1.1315
.20	50	0.001	0.4794	19.0475	4.0460	0.9389	0.9886
.15	50	0.001	0.4851	19.5247	4.1504	0.9501	1.0219
.10	50	0.001	0.4915	20.1240	4.2806	0.9629	1.0636
.05	50	0.001	0.5012	20.9961	4.4692	0.9824	1.1265
.01	50	0.001	0.5205	22.6183	4.8184	1.0209	1.2460

Table E.3 Critical Values: Sample size N, phi = 0.001, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	0.001	0.4804	22.9144	4.8804	0.9441	1.1940
.15	60	0.001	0.4855	23.4460	4.9967	0.9543	1.2298
.10	60	0.001	0.4913	24.1127	5.1385	0.9660	1.2771
.05	60	0.001	0.5001	25.0539	5.3448	0.9836	1.3446
.01	60	0.001	0.5176	26.8744	5.7325	1.0185	1.4807
.20	70	0.001	0.4806	26.8037	5.7125	0.9469	1.3989
.15	70	0.001	0.4856	27.3606	5.8370	0.9569	1.4383
.10	70	0.001	0.4911	28.0591	5.9886	0.9680	1.4875
.05	70	0.001	0.4987	29.1083	6.2178	0.9831	1.5604
.01	70	0.001	0.5136	30.9744	6.6134	1.0130	1.6965
.20	80	0.001	0.4813	30.6863	6.5468	0.9500	1.6040
.15	80	0.001	0.4858	31.2855	6.6785	0.9591	1.6455
.10	80	0.001	0.4911	31.9966	6.8361	0.9697	1.6970
.05	80	0.001	0.4981	33.0891	7.0719	0.9837	1.7731
.01	80	0.001	0.5112	35.1283	7.5107	1.0099	1.9183
.20	90	0.001	0.4814	34.5416	7.3775	0.9518	1.8103
.15	90	0.001	0.4860	35.1793	7.5190	0.9609	1.8545
.10	90	0.001	0.4911	35.9488	7.6858	0.9711	1.9081
.05	90	0.001	0.4976	37.0684	7.9314	0.9842	1.9881
.01	90	0.001	0.5093	39.1922	8.3899	1.0076	2.1394
.20	100	0.001	0.4817	38.3967	8.2060	0.9534	2.0140
.15	100	0.001	0.4861	39.0419	8.3492	0.9622	2.0596
.10	100	0.001	0.4908	39.8519	8.5252	0.9716	2.1168
.05	100	0.001	0.4971	41.0901	8.7968	0.9842	2.2028
.01	100	0.001	0.5083	43.2719	9.2754	1.0065	2.3702

Table E.4 Critical Values: Sample size N, phi = 0.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	0.500	0.4053	0.9765	0.1770	0.6146	0.0811
.15	5	0.500	0.4245	1.0642	0.1973	0.6513	0.0896
.10	5	0.500	0.4479	1.1860	0.2257	0.6968	0.1016
.05	5	0.500	0.4864	1.3859	0.2719	0.7728	0.1227
.01	5	0.500	0.5601	1.7955	0.3557	0.9202	0.1689
.20	10	0.500	0.3636	1.7475	0.3383	0.6272	0.1082
.15	10	0.500	0.3802	1.8960	0.3725	0.6605	0.1214
.10	10	0.500	0.4018	2.0987	0.4192	0.7037	0.1402
.05	10	0.500	0.4338	2.4190	0.4934	0.7676	0.1713
.01	10	0.500	0.4943	3.0986	0.6470	0.8887	0.2393
.20	15	0.500	0.3416	2.4891	0.4913	0.6166	0.1367
.15	15	0.500	0.3558	2.6797	0.5350	0.6449	0.1531
.10	15	0.500	0.3740	2.9355	0.5938	0.6814	0.1754
.05	15	0.500	0.4017	3.3392	0.6865	0.7366	0.2124
.01	15	0.500	0.4543	4.1842	0.8817	0.8420	0.2936
.20	20	0.500	0.3272	3.2178	0.6407	0.6043	0.1648
.15	20	0.500	0.3396	3.4388	0.6915	0.6291	0.1833
.10	20	0.500	0.3558	3.7320	0.7592	0.6616	0.2084
.05	20	0.500	0.3800	4.1986	0.8665	0.7100	0.2490
.01	20	0.500	0.4262	5.1859	1.0907	0.8023	0.3385
.20	25	0.500	0.3163	3.9222	0.7848	0.5927	0.1917
.15	25	0.500	0.3278	4.1694	0.8418	0.6156	0.2119
.10	25	0.500	0.3423	4.4952	0.9169	0.6447	0.2393
.05	25	0.500	0.3644	5.0121	1.0362	0.6889	0.2833
.01	25	0.500	0.4066	6.0841	1.2795	0.7732	0.3783

Table E.5 Critical Values: Sample size N, phi = 0.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	0.500	0.3083	4.6235	0.9278	0.5833	0.2182
.15	30	0.500	0.3187	4.8917	0.9899	0.6042	0.2400
.10	30	0.500	0.3323	5.2525	1.0721	0.6313	0.2694
.05	30	0.500	0.3529	5.8184	1.2022	0.6725	0.3169
.01	30	0.500	0.3916	6.9962	1.4719	0.7499	0.4179
.20	35	0.500	0.3019	5.3082	1.0679	0.5751	0.2442
.15	35	0.500	0.3117	5.5992	1.1343	0.5948	0.2672
.10	35	0.500	0.3242	5.9831	1.2225	0.6198	0.2980
.05	35	0.500	0.3428	6.5897	1.3607	0.6570	0.3478
.01	35	0.500	0.3792	7.8331	1.6466	0.7297	0.4531
.20	40	0.500	0.2965	6.0010	1.2079	0.5679	0.2693
.15	40	0.500	0.3058	6.3115	1.2796	0.5865	0.2936
.10	40	0.500	0.3175	6.7188	1.3726	0.6099	0.3262
.05	40	0.500	0.3353	7.3646	1.5210	0.6457	0.3785
.01	40	0.500	0.3696	8.6896	1.8236	0.7142	0.4904
.20	45	0.500	0.2920	6.6783	1.3459	0.5618	0.2944
.15	45	0.500	0.3007	7.0039	1.4216	0.5792	0.3203
.10	45	0.500	0.3118	7.4366	1.5198	0.6014	0.3542
.05	45	0.500	0.3287	8.1047	1.6736	0.6351	0.4083
.01	45	0.500	0.3612	9.4897	1.9856	0.7001	0.5228
.20	50	0.500	0.2884	7.3623	1.4853	0.5567	0.3206
.15	50	0.500	0.2968	7.7078	1.5649	0.5735	0.3473
.10	50	0.500	0.3073	8.1597	1.6676	0.5946	0.3826
.05	50	0.500	0.3236	8.8591	1.8280	0.6272	0.4393
.01	50	0.500	0.3540	10.3283	2.1626	0.6880	0.5571

Table E.6 Critical Values: Sample size N, phi = 0.001, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	0.500	0.2822	8.7045	1.7567	0.5477	0.3689
.15	60	0.500	0.2898	9.0934	1.8455	0.5630	0.3979
.10	60	0.500	0.2997	9.5771	1.9611	0.5827	0.4363
.05	60	0.500	0.3143	10.3297	2.1320	0.6119	0.4980
.01	60	0.500	0.3432	11.8957	2.4879	0.6697	0.6261
.20	70	0.500	0.2769	10.0278	2.0258	0.5396	0.4171
.15	70	0.500	0.2842	10.4218	2.1159	0.5541	0.4478
.10	70	0.500	0.2931	10.9559	2.2367	0.5718	0.4876
.05	70	0.500	0.3069	11.7560	2.4191	0.5995	0.5515
.01	70	0.500	0.3338	13.4864	2.8159	0.6533	0.6828
.20	80	0.500	0.2727	11.3366	2.2897	0.5330	0.4638
.15	80	0.500	0.2794	11.7768	2.3907	0.5463	0.4963
.10	80	0.500	0.2880	12.3445	2.5197	0.5636	0.5404
.05	80	0.500	0.3012	13.2311	2.7248	0.5900	0.6074
.01	80	0.500	0.3262	15.0319	3.1214	0.6400	0.7504
.20	90	0.500	0.2695	12.6557	2.5580	0.5279	0.5119
.15	90	0.500	0.2758	13.1239	2.6629	0.5405	0.5458
.10	90	0.500	0.2841	13.7114	2.7949	0.5570	0.5907
.05	90	0.500	0.2962	14.6265	3.0093	0.5813	0.6606
.01	90	0.500	0.3194	16.5499	3.4323	0.6277	0.8073
.20	100	0.500	0.2666	13.9948	2.8256	0.5231	0.5600
.15	100	0.500	0.2724	14.4711	2.9354	0.5347	0.5952
.10	100	0.500	0.2799	15.0686	3.0727	0.5499	0.6402
.05	100	0.500	0.2916	15.9797	3.2835	0.5732	0.7096
.01	100	0.500	0.3139	17.9348	3.7251	0.6177	0.8638

Table E.7 Critical Values: Sample size N, phi = 1.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	1.000	0.3804	0.8088	0.1444	0.5728	0.0803
.15	5	1.000	0.4002	0.8782	0.1612	0.6066	0.0886
.10	5	1.000	0.4236	0.9768	0.1846	0.6502	0.1001
.05	5	1.000	0.4577	1.1441	0.2260	0.7164	0.1200
.01	5	1.000	0.5343	1.5129	0.3083	0.8686	0.1671
.20	10	1.000	0.3304	1.3147	0.2510	0.5608	0.0968
.15	10	1.000	0.3457	1.4303	0.2789	0.5915	0.1084
.10	10	1.000	0.3659	1.5893	0.3166	0.6318	0.1251
.05	10	1.000	0.3967	1.8546	0.3794	0.6934	0.1533
.01	10	1.000	0.4559	2.4381	0.5144	0.8118	0.2170
.20	15	1.000	0.3045	1.8021	0.3519	0.5424	0.1139
.15	15	1.000	0.3180	1.9476	0.3864	0.5694	0.1277
.10	15	1.000	0.3350	2.1452	0.4327	0.6033	0.1471
.05	15	1.000	0.3611	2.4678	0.5079	0.6555	0.1794
.01	15	1.000	0.4114	3.1641	0.6695	0.7561	0.2511
.20	20	1.000	0.2883	2.2822	0.4496	0.5267	0.1311
.15	20	1.000	0.3001	2.4493	0.4893	0.5502	0.1465
.10	20	1.000	0.3150	2.6748	0.5416	0.5799	0.1677
.05	20	1.000	0.3375	3.0352	0.6264	0.6251	0.2027
.01	20	1.000	0.3818	3.8364	0.8090	0.7137	0.2804
.20	25	1.000	0.2766	2.7435	0.5437	0.5132	0.1477
.15	25	1.000	0.2871	2.9284	0.5872	0.5343	0.1643
.10	25	1.000	0.3008	3.1754	0.6451	0.5616	0.1870
.05	25	1.000	0.3217	3.5764	0.7388	0.6034	0.2247
.01	25	1.000	0.3618	4.4493	0.9398	0.6836	0.3080

Table E.8 Critical Values: Sample size N, phi = 1.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	1.000	0.2677	3.2042	0.6370	0.5021	0.1642
.15	30	1.000	0.2775	3.4031	0.6838	0.5217	0.1819
.10	30	1.000	0.2902	3.6723	0.7469	0.5470	0.2064
.05	30	1.000	0.3093	4.1058	0.8475	0.5853	0.2462
.01	30	1.000	0.3459	5.0396	1.0633	0.6585	0.3338
.20	35	1.000	0.2606	3.6518	0.7274	0.4926	0.1799
.15	35	1.000	0.2696	3.8654	0.7775	0.5106	0.1986
.10	35	1.000	0.2814	4.1519	0.8450	0.5342	0.2240
.05	35	1.000	0.2990	4.6132	0.9526	0.5694	0.2654
.01	35	1.000	0.3336	5.6004	1.1790	0.6387	0.3557
.20	40	1.000	0.2548	4.1002	0.8182	0.4847	0.1956
.15	40	1.000	0.2634	4.3295	0.8710	0.5017	0.2154
.10	40	1.000	0.2742	4.6299	0.9419	0.5235	0.2416
.05	40	1.000	0.2909	5.1174	1.0552	0.5567	0.2850
.01	40	1.000	0.3231	6.1412	1.2904	0.6212	0.3776
.20	45	1.000	0.2500	4.5459	0.9084	0.4778	0.2113
.15	45	1.000	0.2581	4.7904	0.9649	0.4940	0.2319
.10	45	1.000	0.2684	5.1073	1.0393	0.5147	0.2599
.05	45	1.000	0.2844	5.6096	1.1559	0.5465	0.3051
.01	45	1.000	0.3147	6.6859	1.4027	0.6073	0.4011
.20	50	1.000	0.2460	4.9902	0.9977	0.4719	0.2272
.15	50	1.000	0.2538	5.2434	1.0567	0.4876	0.2488
.10	50	1.000	0.2637	5.5794	1.1349	0.5075	0.2778
.05	50	1.000	0.2789	6.1146	1.2594	0.5377	0.3247
.01	50	1.000	0.3080	7.2119	1.5133	0.5960	0.4232

Table E.9 Critical Values: Sample size N, phi = 1.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	1.000	0.2393	5.8693	1.1737	0.4619	0.2576
.15	60	1.000	0.2466	6.1441	1.2370	0.4765	0.2801
.10	60	1.000	0.2557	6.5043	1.3231	0.4947	0.3114
.05	60	1.000	0.2698	7.0824	1.4574	0.5229	0.3613
.01	60	1.000	0.2965	8.2934	1.7442	0.5764	0.4692
.20	70	1.000	0.2338	6.7319	1.3465	0.4533	0.2868
.15	70	1.000	0.2405	7.0334	1.4150	0.4667	0.3112
.10	70	1.000	0.2493	7.4191	1.5071	0.4844	0.3444
.05	70	1.000	0.2626	8.0270	1.6499	0.5109	0.3978
.01	70	1.000	0.2871	9.3029	1.9478	0.5600	0.5092
.20	80	1.000	0.2295	7.5959	1.5203	0.4465	0.3165
.15	80	1.000	0.2360	7.9173	1.5960	0.4595	0.3428
.10	80	1.000	0.2440	8.3429	1.6950	0.4755	0.3772
.05	80	1.000	0.2559	8.9692	1.8415	0.4992	0.4300
.01	80	1.000	0.2788	10.2828	2.1461	0.5452	0.5447
.20	90	1.000	0.2260	8.4415	1.6884	0.4408	0.3451
.15	90	1.000	0.2320	8.7712	1.7657	0.4530	0.3718
.10	90	1.000	0.2398	9.2066	1.8673	0.4685	0.4075
.05	90	1.000	0.2507	9.8747	2.0263	0.4903	0.4647
.01	90	1.000	0.2730	11.3492	2.3636	0.5349	0.5854
.20	100	1.000	0.2229	9.2979	1.8615	0.4358	0.3741
.15	100	1.000	0.2285	9.6442	1.9422	0.4469	0.4018
.10	100	1.000	0.2356	10.0877	2.0463	0.4613	0.4381
.05	100	1.000	0.2463	10.7743	2.2065	0.4826	0.4972
.01	100	1.000	0.2662	12.1808	2.5274	0.5224	0.6150

Table E.10 Critical Values: Sample size N, phi = 1.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	1.500	0.3653	0.7284	0.1287	0.5529	0.0798
.15	5	1.500	0.3852	0.7894	0.1437	0.5827	0.0881
.10	5	1.500	0.4088	0.8756	0.1644	0.6238	0.0993
.05	5	1.500	0.4416	1.0236	0.2012	0.6858	0.1184
.01	5	1.500	0.5158	1.3560	0.2803	0.8317	0.1650
.20	10	1.500	0.3116	1.1064	0.2089	0.5234	0.0915
.15	10	1.500	0.3265	1.2030	0.2330	0.5531	0.1023
.10	10	1.500	0.3458	1.3401	0.2657	0.5917	0.1178
.05	10	1.500	0.3754	1.5696	0.3208	0.6509	0.1441
.01	10	1.500	0.4324	2.0881	0.4416	0.7647	0.2035
.20	15	1.500	0.2842	1.4723	0.2850	0.5017	0.1037
.15	15	1.500	0.2970	1.5923	0.3140	0.5273	0.1163
.10	15	1.500	0.3133	1.7574	0.3534	0.5600	0.1337
.05	15	1.500	0.3381	2.0312	0.4178	0.6095	0.1634
.01	15	1.500	0.3861	2.6353	0.5592	0.7056	0.2298
.20	20	1.500	0.2671	1.8312	0.3588	0.4841	0.1161
.15	20	1.500	0.2784	1.9691	0.3920	0.5067	0.1300
.10	20	1.500	0.2928	2.1595	0.4361	0.5355	0.1491
.05	20	1.500	0.3143	2.4681	0.5093	0.5786	0.1810
.01	20	1.500	0.3566	3.1481	0.6660	0.6633	0.2523
.20	25	1.500	0.2548	2.1777	0.4293	0.4696	0.1281
.15	25	1.500	0.2649	2.3293	0.4655	0.4899	0.1428
.10	25	1.500	0.2780	2.5349	0.5142	0.5160	0.1633
.05	25	1.500	0.2978	2.8724	0.5929	0.5555	0.1974
.01	25	1.500	0.3364	3.6109	0.7651	0.6328	0.2732

Table E.11 Critical Values: Sample size N, phi = 1.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	1.500	0.2455	2.5248	0.4994	0.4578	0.1400
.15	30	1.500	0.2549	2.6888	0.5382	0.4764	0.1560
.10	30	1.500	0.2669	2.9109	0.5913	0.5004	0.1777
.05	30	1.500	0.2854	3.2760	0.6768	0.5375	0.2133
.01	30	1.500	0.3206	4.0589	0.8589	0.6078	0.2937
.20	35	1.500	0.2381	2.8596	0.5670	0.4477	0.1518
.15	35	1.500	0.2468	3.0349	0.6086	0.4650	0.1681
.10	35	1.500	0.2581	3.2709	0.6645	0.4876	0.1906
.05	35	1.500	0.2749	3.6544	0.7547	0.5213	0.2280
.01	35	1.500	0.3081	4.4760	0.9449	0.5877	0.3092
.20	40	1.500	0.2322	3.1964	0.6347	0.4394	0.1631
.15	40	1.500	0.2403	3.3821	0.6790	0.4557	0.1803
.10	40	1.500	0.2508	3.6323	0.7382	0.4767	0.2040
.05	40	1.500	0.2668	4.0352	0.8322	0.5087	0.2429
.01	40	1.500	0.2978	4.8851	1.0312	0.5705	0.3271
.20	45	1.500	0.2272	3.5305	0.7024	0.4322	0.1749
.15	45	1.500	0.2350	3.7264	0.7487	0.4478	0.1930
.10	45	1.500	0.2449	3.9864	0.8105	0.4677	0.2174
.05	45	1.500	0.2601	4.4039	0.9081	0.4981	0.2573
.01	45	1.500	0.2893	5.2871	1.1127	0.5564	0.3449
.20	50	1.500	0.2231	3.8637	0.7689	0.4263	0.1862
.15	50	1.500	0.2306	4.0698	0.8175	0.4411	0.2053
.10	50	1.500	0.2400	4.3429	0.8830	0.4601	0.2306
.05	50	1.500	0.2545	4.7752	0.9853	0.4889	0.2724
.01	50	1.500	0.2826	5.6908	1.1974	0.5451	0.3622

Table E.12 Critical Values: Sample size N, phi = 1.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	1.500	0.2161	4.5230	0.9021	0.4155	0.2087
.15	60	1.500	0.2232	4.7502	0.9555	0.4298	0.2292
.10	60	1.500	0.2323	5.0447	1.0245	0.4480	0.2563
.05	60	1.500	0.2456	5.5146	1.1355	0.4745	0.3004
.01	60	1.500	0.2704	6.5317	1.3697	0.5241	0.3979
.20	70	1.500	0.2108	5.1673	1.0291	0.4072	0.2301
.15	70	1.500	0.2171	5.4040	1.0860	0.4200	0.2508
.10	70	1.500	0.2252	5.7219	1.1598	0.4362	0.2801
.05	70	1.500	0.2373	6.2181	1.2795	0.4603	0.3260
.01	70	1.500	0.2613	7.2351	1.5169	0.5083	0.4254
.20	80	1.500	0.2061	5.8125	1.1597	0.3998	0.2512
.15	80	1.500	0.2122	6.0769	1.2189	0.4118	0.2740
.10	80	1.500	0.2198	6.4101	1.3007	0.4271	0.3036
.05	80	1.500	0.2314	6.9365	1.4223	0.4503	0.3509
.01	80	1.500	0.2534	8.0116	1.6766	0.4943	0.4532
.20	90	1.500	0.2026	6.4504	1.2871	0.3942	0.2732
.15	90	1.500	0.2083	6.7185	1.3499	0.4055	0.2960
.10	90	1.500	0.2155	7.0639	1.4327	0.4199	0.3278
.05	90	1.500	0.2267	7.6236	1.5627	0.4422	0.3790
.01	90	1.500	0.2476	8.8156	1.8347	0.4841	0.4832
.20	100	1.500	0.1993	7.0843	1.4122	0.3887	0.2928
.15	100	1.500	0.2047	7.3645	1.4794	0.3994	0.3168
.10	100	1.500	0.2115	7.7221	1.5646	0.4129	0.3497
.05	100	1.500	0.2217	8.2779	1.6947	0.4335	0.4004
.01	100	1.500	0.2411	9.4508	1.9661	0.4723	0.5034

Table E.13 Critical Values: Sample size N, phi = 2.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	2.000	0.3548	0.6796	0.1193	0.5413	0.0795
.15	5	2.000	0.3747	0.7363	0.1332	0.5689	0.0877
.10	5	2.000	0.3982	0.8150	0.1520	0.6060	0.0986
.05	5	2.000	0.4305	0.9492	0.1850	0.6651	0.1170
.01	5	2.000	0.5019	1.2556	0.2608	0.8039	0.1622
.20	10	2.000	0.2988	0.9829	0.1836	0.4982	0.0885
.15	10	2.000	0.3135	1.0684	0.2050	0.5274	0.0989
.10	10	2.000	0.3322	1.1901	0.2347	0.5645	0.1134
.05	10	2.000	0.3610	1.3959	0.2846	0.6220	0.1384
.01	10	2.000	0.4165	1.8693	0.3949	0.7331	0.1946
.20	15	2.000	0.2706	1.2756	0.2451	0.4747	0.0979
.15	15	2.000	0.2829	1.3815	0.2709	0.4992	0.1097
.10	15	2.000	0.2989	1.5267	0.3061	0.5312	0.1259
.05	15	2.000	0.3231	1.7679	0.3635	0.5795	0.1536
.01	15	2.000	0.3698	2.3118	0.4905	0.6730	0.2171
.20	20	2.000	0.2530	1.5633	0.3044	0.4559	0.1075
.15	20	2.000	0.2638	1.6827	0.3335	0.4776	0.1202
.10	20	2.000	0.2776	1.8471	0.3724	0.5052	0.1379
.05	20	2.000	0.2987	2.1188	0.4370	0.5475	0.1677
.01	20	2.000	0.3400	2.7211	0.5780	0.6300	0.2359
.20	25	2.000	0.2404	1.8402	0.3608	0.4409	0.1168
.15	25	2.000	0.2502	1.9718	0.3928	0.4604	0.1305
.10	25	2.000	0.2629	2.1506	0.4352	0.4858	0.1494
.05	25	2.000	0.2820	2.4467	0.5051	0.5239	0.1810
.01	25	2.000	0.3197	3.0991	0.6573	0.5995	0.2526

Table E.14 Critical Values: Sample size N, phi = 2.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	2.000	0.2311	2.1206	0.4178	0.4289	0.1266
.15	30	2.000	0.2401	2.2613	0.4517	0.4468	0.1410
.10	30	2.000	0.2516	2.4547	0.4981	0.4699	0.1610
.05	30	2.000	0.2696	2.7710	0.5730	0.5058	0.1942
.01	30	2.000	0.3038	3.4644	0.7331	0.5742	0.2692
.20	35	2.000	0.2235	2.3892	0.4720	0.4183	0.1357
.15	35	2.000	0.2319	2.5413	0.5086	0.4352	0.1509
.10	35	2.000	0.2427	2.7453	0.5577	0.4569	0.1716
.05	35	2.000	0.2591	3.0794	0.6364	0.4897	0.2063
.01	35	2.000	0.2916	3.7928	0.8043	0.5547	0.2826
.20	40	2.000	0.2174	2.6597	0.5265	0.4098	0.1446
.15	40	2.000	0.2253	2.8208	0.5648	0.4256	0.1605
.10	40	2.000	0.2355	3.0365	0.6171	0.4459	0.1822
.05	40	2.000	0.2509	3.3846	0.6994	0.4769	0.2182
.01	40	2.000	0.2811	4.1326	0.8740	0.5371	0.2966
.20	45	2.000	0.2124	2.9287	0.5808	0.4025	0.1541
.15	45	2.000	0.2199	3.0977	0.6216	0.4177	0.1707
.10	45	2.000	0.2296	3.3211	0.6750	0.4369	0.1932
.05	45	2.000	0.2442	3.6804	0.7599	0.4663	0.2297
.01	45	2.000	0.2727	4.4497	0.9398	0.5232	0.3111
.20	50	2.000	0.2082	3.1948	0.6342	0.3963	0.1629
.15	50	2.000	0.2153	3.3694	0.6763	0.4107	0.1803
.10	50	2.000	0.2246	3.6077	0.7331	0.4291	0.2036
.05	50	2.000	0.2385	3.9822	0.8226	0.4570	0.2420
.01	50	2.000	0.2659	4.7834	1.0087	0.5117	0.3247

Table E.15 Critical Values: Sample size N, phi = 2.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	2.000	0.2013	3.7257	0.7412	0.3859	0.1812
.15	60	2.000	0.2082	3.9246	0.7876	0.3997	0.2001
.10	60	2.000	0.2166	4.1699	0.8483	0.4166	0.2250
.05	60	2.000	0.2297	4.6004	0.9481	0.4427	0.2658
.01	60	2.000	0.2541	5.4480	1.1491	0.4915	0.3537
.20	70	2.000	0.1956	4.2463	0.8445	0.3770	0.1981
.15	70	2.000	0.2018	4.4477	0.8921	0.3894	0.2176
.10	70	2.000	0.2098	4.7080	0.9567	0.4053	0.2428
.05	70	2.000	0.2218	5.1475	1.0588	0.4293	0.2857
.01	70	2.000	0.2449	6.0452	1.2688	0.4754	0.3763
.20	80	2.000	0.1910	4.7599	0.9474	0.3696	0.2148
.15	80	2.000	0.1966	4.9755	0.9979	0.3807	0.2354
.10	80	2.000	0.2040	5.2663	1.0672	0.3954	0.2616
.05	80	2.000	0.2154	5.7132	1.1754	0.4183	0.3057
.01	80	2.000	0.2370	6.6274	1.3909	0.4615	0.3986
.20	90	2.000	0.1874	5.2721	1.0489	0.3636	0.2321
.15	90	2.000	0.1928	5.4981	1.1037	0.3745	0.2527
.10	90	2.000	0.1999	5.7971	1.1740	0.3887	0.2805
.05	90	2.000	0.2105	6.2711	1.2856	0.4099	0.3282
.01	90	2.000	0.2309	7.2847	1.5281	0.4507	0.4256
.20	100	2.000	0.1840	5.7767	1.1491	0.3579	0.2482
.15	100	2.000	0.1892	6.0136	1.2068	0.3684	0.2691
.10	100	2.000	0.1958	6.3288	1.2822	0.3815	0.2992
.05	100	2.000	0.2056	6.8143	1.3956	0.4012	0.3445
.01	100	2.000	0.2250	7.8239	1.6329	0.4400	0.4407

Table E.16 Critical Values: Sample size N, phi = 2.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	2.500	0.3474	0.6485	0.1133	0.5341	0.0793
.15	5	2.500	0.3672	0.7012	0.1261	0.5602	0.0873
.10	5	2.500	0.3904	0.7756	0.1440	0.5943	0.0981
.05	5	2.500	0.4223	0.9022	0.1746	0.6505	0.1160
.01	5	2.500	0.4915	1.1892	0.2472	0.7830	0.1605
.20	10	2.500	0.2897	0.9011	0.1668	0.4805	0.0865
.15	10	2.500	0.3040	0.9787	0.1863	0.5086	0.0964
.10	10	2.500	0.3223	1.0895	0.2135	0.5449	0.1104
.05	10	2.500	0.3503	1.2782	0.2592	0.6006	0.1343
.01	10	2.500	0.4042	1.7127	0.3608	0.7083	0.1883
.20	15	2.500	0.2608	1.1440	0.2183	0.4551	0.0941
.15	15	2.500	0.2728	1.2393	0.2419	0.4790	0.1053
.10	15	2.500	0.2884	1.3707	0.2736	0.5101	0.1208
.05	15	2.500	0.3120	1.5906	0.3263	0.5574	0.1472
.01	15	2.500	0.3581	2.0951	0.4438	0.6496	0.2089
.20	20	2.500	0.2428	1.3846	0.2681	0.4356	0.1019
.15	20	2.500	0.2534	1.4920	0.2943	0.4567	0.1141
.10	20	2.500	0.2669	1.6399	0.3299	0.4838	0.1308
.05	20	2.500	0.2877	1.8869	0.3890	0.5253	0.1592
.01	20	2.500	0.3279	2.4361	0.5168	0.6058	0.2245
.20	25	2.500	0.2300	1.6156	0.3152	0.4199	0.1095
.15	25	2.500	0.2396	1.7334	0.3441	0.4391	0.1224
.10	25	2.500	0.2519	1.8932	0.3826	0.4638	0.1403
.05	25	2.500	0.2707	2.1605	0.4457	0.5013	0.1705
.01	25	2.500	0.3077	2.7608	0.5860	0.5754	0.2382

Table E.17 Critical Values: Sample size N, phi = 2.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	2.500	0.2204	1.8487	0.3629	0.4076	0.1175
.15	30	2.500	0.2292	1.9746	0.3935	0.4251	0.1312
.10	30	2.500	0.2406	2.1504	0.4354	0.4479	0.1501
.05	30	2.500	0.2582	2.4353	0.5040	0.4831	0.1815
.01	30	2.500	0.2913	3.0555	0.6474	0.5493	0.2521
.20	35	2.500	0.2130	2.0767	0.4092	0.3974	0.1254
.15	35	2.500	0.2212	2.2132	0.4421	0.4138	0.1396
.10	35	2.500	0.2317	2.3965	0.4865	0.4348	0.1590
.05	35	2.500	0.2478	2.6947	0.5575	0.4670	0.1918
.01	35	2.500	0.2793	3.3446	0.7096	0.5301	0.2646
.20	40	2.500	0.2066	2.2997	0.4541	0.3882	0.1325
.15	40	2.500	0.2144	2.4436	0.4885	0.4038	0.1473
.10	40	2.500	0.2244	2.6377	0.5355	0.4238	0.1678
.05	40	2.500	0.2396	2.9509	0.6105	0.4542	0.2018
.01	40	2.500	0.2688	3.6144	0.7675	0.5125	0.2761
.20	45	2.500	0.2016	2.5281	0.5002	0.3811	0.1405
.15	45	2.500	0.2090	2.6764	0.5364	0.3958	0.1560
.10	45	2.500	0.2183	2.8771	0.5846	0.4144	0.1771
.05	45	2.500	0.2327	3.1992	0.6616	0.4432	0.2118
.01	45	2.500	0.2607	3.8918	0.8238	0.4992	0.2894
.20	50	2.500	0.1974	2.7491	0.5446	0.3747	0.1479
.15	50	2.500	0.2043	2.9057	0.5827	0.3886	0.1640
.10	50	2.500	0.2134	3.1149	0.6335	0.4067	0.1860
.05	50	2.500	0.2269	3.4503	0.7136	0.4337	0.2218
.01	50	2.500	0.2537	4.1690	0.8836	0.4874	0.3005

Table E.18 Critical Values: Sample size N, phi = 2.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	2.500	0.1905	3.1970	0.6341	0.3643	0.1630
.15	60	2.500	0.1969	3.3646	0.6750	0.3772	0.1804
.10	60	2.500	0.2054	3.5939	0.7317	0.3941	0.2034
.05	60	2.500	0.2179	3.9633	0.8185	0.4191	0.2415
.01	60	2.500	0.2421	4.7071	0.9966	0.4675	0.3260
.20	70	2.500	0.1847	3.6283	0.7206	0.3551	0.1772
.15	70	2.500	0.1906	3.8106	0.7637	0.3669	0.1953
.10	70	2.500	0.1985	4.0416	0.8222	0.3826	0.2191
.05	70	2.500	0.2101	4.4272	0.9125	0.4060	0.2590
.01	70	2.500	0.2321	5.2147	1.1033	0.4499	0.3450
.20	80	2.500	0.1800	4.0599	0.8060	0.3475	0.1913
.15	80	2.500	0.1855	4.2459	0.8518	0.3586	0.2095
.10	80	2.500	0.1927	4.5005	0.9138	0.3730	0.2347
.05	80	2.500	0.2037	4.9069	1.0105	0.3948	0.2751
.01	80	2.500	0.2250	5.7101	1.2000	0.4375	0.3601
.20	90	2.500	0.1763	4.4827	0.8904	0.3414	0.2047
.15	90	2.500	0.1816	4.6796	0.9380	0.3520	0.2238
.10	90	2.500	0.1884	4.9422	1.0020	0.3656	0.2495
.05	90	2.500	0.1990	5.3637	1.1033	0.3868	0.2936
.01	90	2.500	0.2186	6.2622	1.3166	0.4260	0.3843
.20	100	2.500	0.1729	4.9069	0.9756	0.3359	0.2188
.15	100	2.500	0.1781	5.1152	1.0246	0.3462	0.2384
.10	100	2.500	0.1843	5.3880	1.0918	0.3585	0.2652
.05	100	2.500	0.1942	5.8226	1.1975	0.3785	0.3081
.01	100	2.500	0.2136	6.7182	1.4119	0.4171	0.3991

Table E.19 Critical Values: Sample size N, phi = 3.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	3.000	0.3416	0.6256	0.1089	0.5291	0.0791
.15	5	3.000	0.3613	0.6759	0.1210	0.5542	0.0871
.10	5	3.000	0.3843	0.7470	0.1379	0.5863	0.0977
.05	5	3.000	0.4158	0.8676	0.1668	0.6395	0.1153
.01	5	3.000	0.4834	1.1400	0.2364	0.7670	0.1588
.20	10	3.000	0.2826	0.8432	0.1547	0.4671	0.0852
.15	10	3.000	0.2967	0.9158	0.1728	0.4945	0.0948
.10	10	3.000	0.3147	1.0192	0.1982	0.5299	0.1084
.05	10	3.000	0.3422	1.1945	0.2409	0.5844	0.1315
.01	10	3.000	0.3952	1.6032	0.3365	0.6903	0.1841
.20	15	3.000	0.2532	1.0505	0.1989	0.4399	0.0915
.15	15	3.000	0.2649	1.1382	0.2207	0.4633	0.1021
.10	15	3.000	0.2802	1.2579	0.2502	0.4938	0.1171
.05	15	3.000	0.3034	1.4636	0.2993	0.5401	0.1426
.01	15	3.000	0.3490	1.9386	0.4098	0.6313	0.2029
.20	20	3.000	0.2350	1.2565	0.2418	0.4199	0.0981
.15	20	3.000	0.2453	1.3553	0.2661	0.4406	0.1097
.10	20	3.000	0.2586	1.4911	0.2993	0.4672	0.1257
.05	20	3.000	0.2789	1.7203	0.3538	0.5079	0.1531
.01	20	3.000	0.3187	2.2281	0.4729	0.5874	0.2161
.20	25	3.000	0.2220	1.4551	0.2828	0.4040	0.1045
.15	25	3.000	0.2315	1.5628	0.3092	0.4230	0.1168
.10	25	3.000	0.2435	1.7102	0.3450	0.4469	0.1339
.05	25	3.000	0.2619	1.9532	0.4028	0.4838	0.1628
.01	25	3.000	0.2983	2.5130	0.5329	0.5566	0.2285

Table E.20 Critical Values: Sample size N, phi = 3.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	3.000	0.2124	1.6557	0.3238	0.3914	0.1113
.15	30	3.000	0.2210	1.7710	0.3520	0.4086	0.1243
.10	30	3.000	0.2322	1.9303	0.3904	0.4310	0.1422
.05	30	3.000	0.2493	2.1923	0.4533	0.4652	0.1722
.01	30	3.000	0.2821	2.7696	0.5864	0.5308	0.2403
.20	35	3.000	0.2049	1.8520	0.3639	0.3812	0.1180
.15	35	3.000	0.2129	1.9757	0.3941	0.3972	0.1315
.10	35	3.000	0.2232	2.1435	0.4347	0.4179	0.1500
.05	35	3.000	0.2390	2.4168	0.5002	0.4495	0.1813
.01	35	3.000	0.2703	3.0210	0.6406	0.5120	0.2522
.20	40	3.000	0.1984	2.0429	0.4024	0.3718	0.1240
.15	40	3.000	0.2060	2.1745	0.4340	0.3871	0.1380
.10	40	3.000	0.2158	2.3502	0.4770	0.4066	0.1576
.05	40	3.000	0.2307	2.6395	0.5460	0.4364	0.1898
.01	40	3.000	0.2597	3.2544	0.6919	0.4943	0.2613
.20	45	3.000	0.1934	2.2403	0.4423	0.3646	0.1308
.15	45	3.000	0.2006	2.3751	0.4755	0.3790	0.1456
.10	45	3.000	0.2098	2.5580	0.5194	0.3973	0.1655
.05	45	3.000	0.2239	2.8526	0.5905	0.4256	0.1988
.01	45	3.000	0.2516	3.4926	0.7411	0.4809	0.2729
.20	50	3.000	0.1890	2.4308	0.4807	0.3581	0.1373
.15	50	3.000	0.1959	2.5728	0.5156	0.3717	0.1525
.10	50	3.000	0.2047	2.7621	0.5618	0.3895	0.1732
.05	50	3.000	0.2180	3.0700	0.6358	0.4160	0.2076
.01	50	3.000	0.2445	3.7326	0.7915	0.4690	0.2826

Table E.21 Critical Values: Sample size N, phi = 3.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	3.000	0.1820	2.8093	0.5564	0.3474	0.1500
.15	60	3.000	0.1882	2.9594	0.5936	0.3598	0.1660
.10	60	3.000	0.1965	3.1725	0.6452	0.3764	0.1881
.05	60	3.000	0.2088	3.5065	0.7256	0.4010	0.2244
.01	60	3.000	0.2330	4.1921	0.8897	0.4493	0.3047
.20	70	3.000	0.1763	3.1877	0.6324	0.3382	0.1621
.15	70	3.000	0.1820	3.3474	0.6716	0.3498	0.1793
.10	70	3.000	0.1898	3.5578	0.7235	0.3653	0.2020
.05	70	3.000	0.2012	3.9078	0.8073	0.3882	0.2395
.01	70	3.000	0.2229	4.6366	0.9828	0.4314	0.3213
.20	80	3.000	0.1716	3.5599	0.7059	0.3307	0.1742
.15	80	3.000	0.1771	3.7269	0.7467	0.3417	0.1917
.10	80	3.000	0.1840	3.9609	0.8059	0.3555	0.2150
.05	80	3.000	0.1947	4.3256	0.8922	0.3769	0.2541
.01	80	3.000	0.2157	5.0637	1.0711	0.4189	0.3371
.20	90	3.000	0.1678	3.9237	0.7783	0.3246	0.1863
.15	90	3.000	0.1730	4.1022	0.8224	0.3350	0.2040
.10	90	3.000	0.1797	4.3338	0.8799	0.3483	0.2289
.05	90	3.000	0.1899	4.7120	0.9708	0.3688	0.2692
.01	90	3.000	0.2095	5.5515	1.1702	0.4080	0.3560
.20	100	3.000	0.1645	4.2899	0.8520	0.3189	0.1979
.15	100	3.000	0.1694	4.4764	0.8971	0.3289	0.2165
.10	100	3.000	0.1757	4.7263	0.9581	0.3415	0.2414
.05	100	3.000	0.1853	5.1143	1.0537	0.3607	0.2824
.01	100	3.000	0.2039	5.9312	1.2473	0.3977	0.3683

Table E.22 Critical Values: Sample size N, phi = 3.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	3.500	0.3370	0.6088	0.1055	0.5253	0.0790
.15	5	3.500	0.3566	0.6573	0.1172	0.5496	0.0869
.10	5	3.500	0.3794	0.7268	0.1334	0.5806	0.0974
.05	5	3.500	0.4105	0.8425	0.1609	0.6313	0.1148
.01	5	3.500	0.4768	1.1041	0.2281	0.7543	0.1575
.20	10	3.500	0.2770	0.7995	0.1457	0.4566	0.0841
.15	10	3.500	0.2907	0.8680	0.1627	0.4830	0.0936
.10	10	3.500	0.3085	0.9659	0.1865	0.5178	0.1068
.05	10	3.500	0.3355	1.1311	0.2267	0.5713	0.1292
.01	10	3.500	0.3878	1.5185	0.3177	0.6756	0.1807
.20	15	3.500	0.2472	0.9810	0.1844	0.4279	0.0895
.15	15	3.500	0.2587	1.0628	0.2046	0.4508	0.0999
.10	15	3.500	0.2737	1.1749	0.2324	0.4807	0.1145
.05	15	3.500	0.2966	1.3696	0.2789	0.5265	0.1393
.01	15	3.500	0.3414	1.8217	0.3837	0.6161	0.1977
.20	20	3.500	0.2287	1.1614	0.2222	0.4075	0.0953
.15	20	3.500	0.2389	1.2530	0.2448	0.4279	0.1065
.10	20	3.500	0.2520	1.3790	0.2758	0.4540	0.1219
.05	20	3.500	0.2721	1.5958	0.3274	0.4943	0.1484
.01	20	3.500	0.3116	2.0808	0.4395	0.5732	0.2098
.20	25	3.500	0.2157	1.3348	0.2583	0.3914	0.1008
.15	25	3.500	0.2250	1.4354	0.2828	0.4100	0.1126
.10	25	3.500	0.2369	1.5714	0.3164	0.4337	0.1291
.05	25	3.500	0.2549	1.8013	0.3711	0.4699	0.1572
.01	25	3.500	0.2910	2.3212	0.4921	0.5420	0.2203

Table E.23 Critical Values: Sample size N, phi = 3.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	3.500	0.2059	1.5103	0.2942	0.3784	0.1067
.15	30	3.500	0.2144	1.6173	0.3207	0.3954	0.1192
.10	30	3.500	0.2253	1.7656	0.3566	0.4174	0.1363
.05	30	3.500	0.2422	2.0108	0.4153	0.4511	0.1654
.01	30	3.500	0.2748	2.5488	0.5399	0.5162	0.2313
.20	35	3.500	0.1984	1.6836	0.3296	0.3681	0.1125
.15	35	3.500	0.2062	1.7974	0.3578	0.3838	0.1255
.10	35	3.500	0.2165	1.9530	0.3956	0.4043	0.1432
.05	35	3.500	0.2321	2.2067	0.4568	0.4357	0.1734
.01	35	3.500	0.2632	2.7756	0.5889	0.4977	0.2420
.20	40	3.500	0.1919	1.8507	0.3635	0.3588	0.1178
.15	40	3.500	0.1993	1.9714	0.3930	0.3736	0.1312
.10	40	3.500	0.2090	2.1343	0.4331	0.3929	0.1499
.05	40	3.500	0.2237	2.4039	0.4972	0.4224	0.1809
.01	40	3.500	0.2521	2.9846	0.6337	0.4793	0.2504
.20	45	3.500	0.1868	2.0227	0.3985	0.3513	0.1237
.15	45	3.500	0.1939	2.1486	0.4295	0.3655	0.1377
.10	45	3.500	0.2030	2.3177	0.4706	0.3837	0.1569
.05	45	3.500	0.2168	2.5927	0.5371	0.4114	0.1888
.01	45	3.500	0.2441	3.1875	0.6766	0.4660	0.2605
.20	50	3.500	0.1824	2.1918	0.4326	0.3449	0.1295
.15	50	3.500	0.1891	2.3224	0.4649	0.3582	0.1439
.10	50	3.500	0.1978	2.4981	0.5079	0.3757	0.1638
.05	50	3.500	0.2110	2.7837	0.5761	0.4019	0.1966
.01	50	3.500	0.2370	3.3975	0.7226	0.4540	0.2690

Table E.24 Critical Values: Sample size N, phi = 3.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	3.500	0.1754	2.5252	0.4999	0.3341	0.1407
.15	60	3.500	0.1814	2.6683	0.5348	0.3462	0.1563
.10	60	3.500	0.1896	2.8572	0.5807	0.3625	0.1769
.05	60	3.500	0.2018	3.1633	0.6556	0.3870	0.2122
.01	60	3.500	0.2256	3.8214	0.8121	0.4346	0.2886
.20	70	3.500	0.1697	2.8575	0.5660	0.3251	0.1513
.15	70	3.500	0.1752	2.9985	0.6019	0.3361	0.1672
.10	70	3.500	0.1829	3.1989	0.6503	0.3515	0.1895
.05	70	3.500	0.1943	3.5165	0.7287	0.3742	0.2245
.01	70	3.500	0.2157	4.1984	0.8913	0.4171	0.3045
.20	80	3.500	0.1649	3.1843	0.6311	0.3173	0.1619
.15	80	3.500	0.1703	3.3431	0.6696	0.3281	0.1786
.10	80	3.500	0.1771	3.5580	0.7229	0.3417	0.2006
.05	80	3.500	0.1877	3.8907	0.8041	0.3629	0.2388
.01	80	3.500	0.2085	4.5759	0.9708	0.4045	0.3195
.20	90	3.500	0.1611	3.5050	0.6947	0.3111	0.1724
.15	90	3.500	0.1663	3.6689	0.7355	0.3214	0.1896
.10	90	3.500	0.1727	3.8798	0.7892	0.3343	0.2134
.05	90	3.500	0.1829	4.2278	0.8728	0.3547	0.2519
.01	90	3.500	0.2025	4.9907	1.0540	0.3939	0.3350
.20	100	3.500	0.1577	3.8300	0.7596	0.3055	0.1827
.15	100	3.500	0.1626	4.0033	0.8011	0.3153	0.2000
.10	100	3.500	0.1688	4.2285	0.8590	0.3276	0.2239
.05	100	3.500	0.1783	4.5923	0.9474	0.3466	0.2636
.01	100	3.500	0.1969	5.3419	1.1253	0.3839	0.3482

Table E.25 Critical Values: Sample size N, phi = 4.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	4.000	0.3331	0.5954	0.1029	0.5225	0.0788
.15	5	4.000	0.3526	0.6431	0.1142	0.5463	0.0867
.10	5	4.000	0.3753	0.7106	0.1298	0.5763	0.0972
.05	5	4.000	0.4063	0.8230	0.1563	0.6249	0.1144
.01	5	4.000	0.4717	1.0781	0.2217	0.7444	0.1565
.20	10	4.000	0.2724	0.7660	0.1386	0.4480	0.0833
.15	10	4.000	0.2859	0.8314	0.1547	0.4738	0.0926
.10	10	4.000	0.3034	0.9246	0.1774	0.5079	0.1056
.05	10	4.000	0.3300	1.0823	0.2157	0.5603	0.1276
.01	10	4.000	0.3817	1.4531	0.3020	0.6635	0.1781
.20	15	4.000	0.2421	0.9265	0.1729	0.4178	0.0879
.15	15	4.000	0.2535	1.0033	0.1921	0.4405	0.0980
.10	15	4.000	0.2683	1.1103	0.2184	0.4701	0.1123
.05	15	4.000	0.2911	1.2969	0.2631	0.5155	0.1368
.01	15	4.000	0.3350	1.7252	0.3623	0.6033	0.1936
.20	20	4.000	0.2236	1.0868	0.2068	0.3972	0.0930
.15	20	4.000	0.2337	1.1733	0.2280	0.4173	0.1040
.10	20	4.000	0.2466	1.2925	0.2575	0.4432	0.1190
.05	20	4.000	0.2664	1.4980	0.3065	0.4829	0.1449
.01	20	4.000	0.3055	1.9576	0.4130	0.5609	0.2046
.20	25	4.000	0.2104	1.2419	0.2391	0.3809	0.0979
.15	25	4.000	0.2196	1.3348	0.2622	0.3992	0.1094
.10	25	4.000	0.2313	1.4647	0.2941	0.4227	0.1254
.05	25	4.000	0.2493	1.6836	0.3459	0.4586	0.1528
.01	25	4.000	0.2852	2.1754	0.4605	0.5304	0.2148

Table E.26 Critical Values: Sample size N, phi = 4.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	4.000	0.2006	1.3978	0.2714	0.3679	0.1031
.15	30	4.000	0.2090	1.4980	0.2961	0.3846	0.1152
.10	30	4.000	0.2198	1.6385	0.3299	0.4063	0.1319
.05	30	4.000	0.2365	1.8686	0.3858	0.4396	0.1599
.01	30	4.000	0.2687	2.3769	0.5034	0.5040	0.2242
.20	35	4.000	0.1931	1.5524	0.3033	0.3576	0.1084
.15	35	4.000	0.2008	1.6580	0.3294	0.3730	0.1209
.10	35	4.000	0.2109	1.8049	0.3650	0.3933	0.1380
.05	35	4.000	0.2263	2.0433	0.4224	0.4241	0.1671
.01	35	4.000	0.2568	2.5816	0.5473	0.4851	0.2336
.20	40	4.000	0.1866	1.7010	0.3332	0.3482	0.1130
.15	40	4.000	0.1938	1.8135	0.3609	0.3627	0.1259
.10	40	4.000	0.2033	1.9661	0.3989	0.3816	0.1439
.05	40	4.000	0.2178	2.2176	0.4588	0.4107	0.1740
.01	40	4.000	0.2461	2.7677	0.5881	0.4671	0.2418
.20	45	4.000	0.1813	1.8534	0.3645	0.3404	0.1183
.15	45	4.000	0.1883	1.9711	0.3933	0.3543	0.1316
.10	45	4.000	0.1973	2.1300	0.4325	0.3724	0.1501
.05	45	4.000	0.2110	2.3867	0.4946	0.3999	0.1809
.01	45	4.000	0.2380	2.9535	0.6277	0.4539	0.2507
.20	50	4.000	0.1770	2.0054	0.3951	0.3339	0.1234
.15	50	4.000	0.1836	2.1261	0.4252	0.3471	0.1372
.10	50	4.000	0.1922	2.2906	0.4655	0.3644	0.1562
.05	50	4.000	0.2052	2.5579	0.5296	0.3904	0.1878
.01	50	4.000	0.2310	3.1402	0.6684	0.4420	0.2586

Table E.27 Critical Values: Sample size N, phi = 4.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	4.000	0.1698	2.3027	0.4545	0.3229	0.1334
.15	60	4.000	0.1759	2.4374	0.4882	0.3352	0.1485
.10	60	4.000	0.1839	2.6147	0.5324	0.3512	0.1683
.05	60	4.000	0.1960	2.9017	0.6013	0.3753	0.2023
.01	60	4.000	0.2195	3.5237	0.7485	0.4223	0.2768
.20	70	4.000	0.1641	2.5996	0.5143	0.3140	0.1425
.15	70	4.000	0.1696	2.7324	0.5469	0.3249	0.1582
.10	70	4.000	0.1773	2.9188	0.5934	0.3403	0.1797
.05	70	4.000	0.1883	3.2176	0.6677	0.3623	0.2141
.01	70	4.000	0.2095	3.8436	0.8191	0.4047	0.2885
.20	80	4.000	0.1594	2.8924	0.5728	0.3062	0.1519
.15	80	4.000	0.1648	3.0403	0.6091	0.3170	0.1680
.10	80	4.000	0.1715	3.2358	0.6574	0.3305	0.1897
.05	80	4.000	0.1820	3.5472	0.7331	0.3515	0.2260
.01	80	4.000	0.2029	4.2000	0.8938	0.3932	0.3035
.20	90	4.000	0.1556	3.1781	0.6298	0.3001	0.1618
.15	90	4.000	0.1607	3.3296	0.6674	0.3103	0.1781
.10	90	4.000	0.1671	3.5253	0.7178	0.3231	0.2008
.05	90	4.000	0.1771	3.8507	0.7958	0.3430	0.2386
.01	90	4.000	0.1962	4.5579	0.9640	0.3813	0.3197
.20	100	4.000	0.1522	3.4650	0.6869	0.2944	0.1708
.15	100	4.000	0.1569	3.6238	0.7262	0.3038	0.1877
.10	100	4.000	0.1632	3.8393	0.7803	0.3163	0.2101
.05	100	4.000	0.1724	4.1679	0.8624	0.3348	0.2482
.01	100	4.000	0.1909	4.8606	1.0239	0.3719	0.3299

Table E.28 Critical Values: Sample size N, phi = 4.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	4.500	0.3300	0.5847	0.1007	0.5202	0.0787
.15	5	4.500	0.3493	0.6316	0.1118	0.5436	0.0866
.10	5	4.500	0.3719	0.6978	0.1269	0.5728	0.0970
.05	5	4.500	0.4026	0.8080	0.1525	0.6194	0.1139
.01	5	4.500	0.4671	1.0576	0.2164	0.7361	0.1556
.20	10	4.500	0.2685	0.7393	0.1330	0.4412	0.0826
.15	10	4.500	0.2818	0.8028	0.1483	0.4663	0.0918
.10	10	4.500	0.2992	0.8924	0.1702	0.4999	0.1047
.05	10	4.500	0.3255	1.0448	0.2069	0.5515	0.1263
.01	10	4.500	0.3767	1.4009	0.2905	0.6535	0.1761
.20	15	4.500	0.2379	0.8829	0.1638	0.4095	0.0867
.15	15	4.500	0.2492	0.9569	0.1821	0.4320	0.0966
.10	15	4.500	0.2638	1.0594	0.2073	0.4611	0.1107
.05	15	4.500	0.2865	1.2385	0.2502	0.5063	0.1346
.01	15	4.500	0.3300	1.6506	0.3452	0.5933	0.1901
.20	20	4.500	0.2192	1.0275	0.1943	0.3885	0.0913
.15	20	4.500	0.2292	1.1092	0.2146	0.4084	0.1020
.10	20	4.500	0.2419	1.2231	0.2428	0.4339	0.1168
.05	20	4.500	0.2616	1.4193	0.2893	0.4733	0.1419
.01	20	4.500	0.3002	1.8577	0.3913	0.5504	0.2004
.20	25	4.500	0.2060	1.1667	0.2236	0.3720	0.0957
.15	25	4.500	0.2151	1.2544	0.2455	0.3902	0.1068
.10	25	4.500	0.2268	1.3783	0.2759	0.4135	0.1224
.05	25	4.500	0.2445	1.5886	0.3256	0.4490	0.1491
.01	25	4.500	0.2799	2.0611	0.4350	0.5197	0.2094

Table E.29 Critical Values: Sample size N, phi = 4.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	4.500	0.1961	1.3079	0.2528	0.3589	0.1003
.15	30	4.500	0.2044	1.4028	0.2764	0.3755	0.1120
.10	30	4.500	0.2152	1.5366	0.3086	0.3971	0.1284
.05	30	4.500	0.2317	1.7546	0.3616	0.4301	0.1556
.01	30	4.500	0.2635	2.2439	0.4747	0.4937	0.2191
.20	35	4.500	0.1885	1.4468	0.2816	0.3485	0.1051
.15	35	4.500	0.1962	1.5467	0.3064	0.3638	0.1172
.10	35	4.500	0.2062	1.6862	0.3403	0.3839	0.1339
.05	35	4.500	0.2215	1.9126	0.3950	0.4144	0.1623
.01	35	4.500	0.2516	2.4231	0.5144	0.4746	0.2277
.20	40	4.500	0.1821	1.5815	0.3090	0.3392	0.1092
.15	40	4.500	0.1892	1.6873	0.3351	0.3535	0.1217
.10	40	4.500	0.1986	1.8318	0.3710	0.3721	0.1392
.05	40	4.500	0.2130	2.0713	0.4281	0.4010	0.1683
.01	40	4.500	0.2410	2.5926	0.5515	0.4571	0.2347
.20	45	4.500	0.1768	1.7189	0.3371	0.3313	0.1138
.15	45	4.500	0.1836	1.8288	0.3643	0.3450	0.1267
.10	45	4.500	0.1926	1.9796	0.4015	0.3629	0.1448
.05	45	4.500	0.2062	2.2240	0.4607	0.3902	0.1748
.01	45	4.500	0.2329	2.7631	0.5878	0.4437	0.2432
.20	50	4.500	0.1724	1.8554	0.3649	0.3248	0.1185
.15	50	4.500	0.1789	1.9691	0.3934	0.3378	0.1318
.10	50	4.500	0.1874	2.1246	0.4313	0.3547	0.1503
.05	50	4.500	0.2003	2.3790	0.4924	0.3806	0.1811
.01	50	4.500	0.2259	2.9326	0.6239	0.4317	0.2502

Table E.30 Critical Values: Sample size N, phi = 4.5, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	4.500	0.1652	2.1220	0.4188	0.3137	0.1275
.15	60	4.500	0.1712	2.2502	0.4501	0.3257	0.1419
.10	60	4.500	0.1792	2.4161	0.4922	0.3417	0.1613
.05	60	4.500	0.1910	2.6889	0.5569	0.3653	0.1942
.01	60	4.500	0.2146	3.2820	0.6991	0.4126	0.2669
.20	70	4.500	0.1595	2.3896	0.4722	0.3047	0.1362
.15	70	4.500	0.1649	2.5182	0.5035	0.3155	0.1506
.10	70	4.500	0.1725	2.6920	0.5472	0.3307	0.1711
.05	70	4.500	0.1835	2.9745	0.6174	0.3528	0.2044
.01	70	4.500	0.2042	3.5678	0.7588	0.3940	0.2771
.20	80	4.500	0.1547	2.6567	0.5258	0.2969	0.1444
.15	80	4.500	0.1599	2.7971	0.5597	0.3073	0.1597
.10	80	4.500	0.1667	2.9735	0.6050	0.3209	0.1808
.05	80	4.500	0.1771	3.2666	0.6769	0.3417	0.2157
.01	80	4.500	0.1979	3.8915	0.8259	0.3832	0.2895
.20	90	4.500	0.1510	2.9129	0.5769	0.2909	0.1534
.15	90	4.500	0.1560	3.0538	0.6125	0.3008	0.1689
.10	90	4.500	0.1623	3.2410	0.6603	0.3135	0.1905
.05	90	4.500	0.1723	3.5574	0.7345	0.3334	0.2271
.01	90	4.500	0.1908	4.2197	0.8933	0.3706	0.3066
.20	100	4.500	0.1474	3.1761	0.6283	0.2849	0.1608
.15	100	4.500	0.1521	3.3206	0.6665	0.2943	0.1776
.10	100	4.500	0.1584	3.5260	0.7172	0.3067	0.1999
.05	100	4.500	0.1677	3.8409	0.7956	0.3254	0.2360
.01	100	4.500	0.1857	4.5003	0.9478	0.3614	0.3161

Table E.31 Critical Values: Sample size N, phi = 5.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	5.000	0.3276	0.5759	0.0991	0.5185	0.0786
.15	5	5.000	0.3466	0.6227	0.1099	0.5416	0.0865
.10	5	5.000	0.3692	0.6876	0.1247	0.5703	0.0969
.05	5	5.000	0.3996	0.7956	0.1495	0.6155	0.1137
.01	5	5.000	0.4634	1.0410	0.2121	0.7295	0.1550
.20	10	5.000	0.2652	0.7175	0.1283	0.4354	0.0821
.15	10	5.000	0.2784	0.7788	0.1431	0.4600	0.0912
.10	10	5.000	0.2956	0.8658	0.1641	0.4930	0.1038
.05	10	5.000	0.3216	1.0138	0.1995	0.5438	0.1252
.01	10	5.000	0.3722	1.3586	0.2801	0.6445	0.1742
.20	15	5.000	0.2343	0.8481	0.1564	0.4027	0.0858
.15	15	5.000	0.2456	0.9192	0.1740	0.4248	0.0955
.10	15	5.000	0.2600	1.0184	0.1981	0.4536	0.1093
.05	15	5.000	0.2825	1.1917	0.2395	0.4983	0.1329
.01	15	5.000	0.3255	1.5880	0.3315	0.5844	0.1876
.20	20	5.000	0.2154	0.9789	0.1841	0.3810	0.0898
.15	20	5.000	0.2253	1.0566	0.2036	0.4006	0.1003
.10	20	5.000	0.2380	1.1663	0.2304	0.4260	0.1149
.05	20	5.000	0.2575	1.3543	0.2752	0.4650	0.1396
.01	20	5.000	0.2956	1.7800	0.3740	0.5411	0.1966
.20	25	5.000	0.2022	1.1053	0.2108	0.3644	0.0938
.15	25	5.000	0.2112	1.1896	0.2319	0.3824	0.1047
.10	25	5.000	0.2228	1.3081	0.2609	0.4055	0.1201
.05	25	5.000	0.2404	1.5093	0.3088	0.4408	0.1461
.01	25	5.000	0.2752	1.9657	0.4139	0.5104	0.2053

Table E.32 Critical Values: Sample size N, phi = 5.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	5.000	0.1923	1.2337	0.2376	0.3513	0.0981
.15	30	5.000	0.2006	1.3251	0.2602	0.3678	0.1095
.10	30	5.000	0.2113	1.4520	0.2910	0.3892	0.1255
.05	30	5.000	0.2275	1.6612	0.3415	0.4217	0.1523
.01	30	5.000	0.2592	2.1331	0.4501	0.4851	0.2143
.20	35	5.000	0.1846	1.3596	0.2638	0.3407	0.1023
.15	35	5.000	0.1922	1.4550	0.2876	0.3559	0.1141
.10	35	5.000	0.2021	1.5878	0.3200	0.3757	0.1305
.05	35	5.000	0.2173	1.8073	0.3726	0.4061	0.1581
.01	35	5.000	0.2472	2.2966	0.4874	0.4659	0.2223
.20	40	5.000	0.1782	1.4827	0.2888	0.3315	0.1060
.15	40	5.000	0.1853	1.5833	0.3137	0.3457	0.1182
.10	40	5.000	0.1945	1.7219	0.3479	0.3641	0.1353
.05	40	5.000	0.2089	1.9496	0.4028	0.3928	0.1638
.01	40	5.000	0.2366	2.4531	0.5210	0.4482	0.2291
.20	45	5.000	0.1729	1.6083	0.3146	0.3235	0.1103
.15	45	5.000	0.1796	1.7124	0.3404	0.3370	0.1228
.10	45	5.000	0.1885	1.8551	0.3759	0.3548	0.1404
.05	45	5.000	0.2020	2.0906	0.4327	0.3818	0.1699
.01	45	5.000	0.2287	2.6077	0.5548	0.4352	0.2369
.20	50	5.000	0.1684	1.7325	0.3401	0.3168	0.1144
.15	50	5.000	0.1749	1.8407	0.3671	0.3298	0.1273
.10	50	5.000	0.1833	1.9875	0.4031	0.3466	0.1454
.05	50	5.000	0.1962	2.2292	0.4615	0.3723	0.1755
.01	50	5.000	0.2212	2.7615	0.5872	0.4225	0.2427

Table E.33 Critical Values: Sample size N, phi = 5.0, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	5.000	0.1612	1.9755	0.3892	0.3058	0.1225
.15	60	5.000	0.1673	2.0993	0.4196	0.3178	0.1363
.10	60	5.000	0.1751	2.2549	0.4593	0.3335	0.1558
.05	60	5.000	0.1870	2.5138	0.5208	0.3573	0.1878
.01	60	5.000	0.2107	3.0768	0.6541	0.4048	0.2592
.20	70	5.000	0.1554	2.2198	0.4383	0.2966	0.1308
.15	70	5.000	0.1610	2.3405	0.4678	0.3078	0.1446
.10	70	5.000	0.1684	2.5041	0.5095	0.3225	0.1646
.05	70	5.000	0.1794	2.7739	0.5765	0.3445	0.1968
.01	70	5.000	0.2000	3.3560	0.7163	0.3857	0.2684
.20	80	5.000	0.1507	2.4636	0.4870	0.2889	0.1381
.15	80	5.000	0.1560	2.5963	0.5195	0.2995	0.1529
.10	80	5.000	0.1626	2.7642	0.5622	0.3128	0.1732
.05	80	5.000	0.1729	3.0430	0.6297	0.3332	0.2068
.01	80	5.000	0.1937	3.6359	0.7746	0.3748	0.2788
.20	90	5.000	0.1469	2.6946	0.5334	0.2827	0.1462
.15	90	5.000	0.1519	2.8272	0.5669	0.2926	0.1612
.10	90	5.000	0.1582	3.0056	0.6122	0.3054	0.1825
.05	90	5.000	0.1680	3.3049	0.6844	0.3248	0.2180
.01	90	5.000	0.1866	3.9306	0.8344	0.3621	0.2951
.20	100	5.000	0.1434	2.9321	0.5804	0.2769	0.1532
.15	100	5.000	0.1481	3.0703	0.6167	0.2861	0.1693
.10	100	5.000	0.1542	3.2655	0.6642	0.2984	0.1908
.05	100	5.000	0.1635	3.5691	0.7390	0.3171	0.2259
.01	100	5.000	0.1814	4.1952	0.8866	0.3529	0.3045

Table E.34 Critical Values: Sample size N, phi = 10, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	10.000	0.3150	0.5351	0.0909	0.5110	0.0780
.15	5	10.000	0.3323	0.5790	0.1004	0.5317	0.0858
.10	5	10.000	0.3535	0.6396	0.1132	0.5584	0.0959
.05	5	10.000	0.3829	0.7378	0.1345	0.5971	0.1122
.01	5	10.000	0.4408	0.9589	0.1882	0.6916	0.1510
.20	10	10.000	0.2471	0.6129	0.1060	0.4070	0.0795
.15	10	10.000	0.2594	0.6669	0.1180	0.4279	0.0881
.10	10	10.000	0.2755	0.7428	0.1350	0.4569	0.1001
.05	10	10.000	0.3001	0.8694	0.1638	0.5027	0.1201
.01	10	10.000	0.3478	1.1660	0.2301	0.5958	0.1659
.20	15	10.000	0.2144	0.6817	0.1206	0.3652	0.0811
.15	15	10.000	0.2248	0.7407	0.1342	0.3850	0.0902
.10	15	10.000	0.2385	0.8227	0.1533	0.4115	0.1030
.05	15	10.000	0.2599	0.9655	0.1860	0.4535	0.1246
.01	15	10.000	0.3015	1.2987	0.2613	0.5365	0.1746
.20	20	10.000	0.1947	0.7503	0.1354	0.3403	0.0833
.15	20	10.000	0.2039	0.8128	0.1502	0.3583	0.0927
.10	20	10.000	0.2161	0.9011	0.1709	0.3825	0.1059
.05	20	10.000	0.2345	1.0518	0.2063	0.4191	0.1283
.01	20	10.000	0.2710	1.4028	0.2862	0.4919	0.1797
.20	25	10.000	0.1812	0.8160	0.1496	0.3226	0.0852
.15	25	10.000	0.1896	0.8824	0.1657	0.3395	0.0949
.10	25	10.000	0.2005	0.9751	0.1880	0.3610	0.1086
.05	25	10.000	0.2174	1.1333	0.2254	0.3949	0.1317
.01	25	10.000	0.2506	1.5009	0.3090	0.4613	0.1848

Table E.35 Critical Values: Sample size N, phi = 10, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	10.000	0.1709	0.8835	0.1641	0.3086	0.0875
.15	30	10.000	0.1787	0.9533	0.1812	0.3242	0.0974
.10	30	10.000	0.1888	1.0507	0.2046	0.3443	0.1114
.05	30	10.000	0.2043	1.2152	0.2438	0.3753	0.1353
.01	30	10.000	0.2346	1.5971	0.3311	0.4359	0.1904
.20	35	10.000	0.1630	0.9490	0.1780	0.2975	0.0895
.15	35	10.000	0.1703	1.0218	0.1959	0.3120	0.0998
.10	35	10.000	0.1797	1.1220	0.2208	0.3308	0.1143
.05	35	10.000	0.1941	1.2961	0.2621	0.3597	0.1385
.01	35	10.000	0.2226	1.6881	0.3524	0.4166	0.1951
.20	40	10.000	0.1564	1.0134	0.1917	0.2879	0.0914
.15	40	10.000	0.1632	1.0884	0.2106	0.3015	0.1018
.10	40	10.000	0.1721	1.1929	0.2361	0.3191	0.1166
.05	40	10.000	0.1857	1.3714	0.2785	0.3463	0.1416
.01	40	10.000	0.2122	1.7744	0.3713	0.3994	0.1993
.20	45	10.000	0.1510	1.0806	0.2059	0.2799	0.0937
.15	45	10.000	0.1576	1.1580	0.2255	0.2929	0.1043
.10	45	10.000	0.1660	1.2652	0.2521	0.3097	0.1194
.05	45	10.000	0.1790	1.4496	0.2957	0.3357	0.1452
.01	45	10.000	0.2043	1.8622	0.3921	0.3864	0.2049
.20	50	10.000	0.1465	1.1441	0.2194	0.2730	0.0958
.15	50	10.000	0.1527	1.2244	0.2396	0.2853	0.1067
.10	50	10.000	0.1606	1.3365	0.2672	0.3013	0.1220
.05	50	10.000	0.1729	1.5234	0.3120	0.3258	0.1482
.01	50	10.000	0.1970	1.9374	0.4081	0.3740	0.2072

Table E.36 Critical Values: Sample size N, phi = 10, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	10.000	0.1391	1.2773	0.2471	0.2616	0.1001
.15	60	10.000	0.1449	1.3656	0.2695	0.2731	0.1118
.10	60	10.000	0.1524	1.4806	0.2984	0.2881	0.1279
.05	60	10.000	0.1635	1.6780	0.3453	0.3103	0.1557
.01	60	10.000	0.1860	2.1200	0.4489	0.3554	0.2175
.20	70	10.000	0.1334	1.4073	0.2736	0.2525	0.1046
.15	70	10.000	0.1388	1.4942	0.2959	0.2632	0.1163
.10	70	10.000	0.1455	1.6176	0.3267	0.2768	0.1330
.05	70	10.000	0.1563	1.8216	0.3769	0.2983	0.1613
.01	70	10.000	0.1759	2.2640	0.4819	0.3375	0.2235
.20	80	10.000	0.1284	1.5345	0.2996	0.2442	0.1078
.15	80	10.000	0.1334	1.6273	0.3230	0.2543	0.1203
.10	80	10.000	0.1400	1.7528	0.3540	0.2675	0.1371
.05	80	10.000	0.1498	1.9603	0.4071	0.2870	0.1664
.01	80	10.000	0.1693	2.4247	0.5171	0.3260	0.2299
.20	90	10.000	0.1246	1.6594	0.3256	0.2382	0.1127
.15	90	10.000	0.1294	1.7546	0.3503	0.2477	0.1253
.10	90	10.000	0.1354	1.8907	0.3845	0.2597	0.1427
.05	90	10.000	0.1447	2.1082	0.4380	0.2784	0.1730
.01	90	10.000	0.1628	2.5743	0.5497	0.3146	0.2383
.20	100	10.000	0.1211	1.7794	0.3495	0.2321	0.1156
.15	100	10.000	0.1254	1.8782	0.3751	0.2409	0.1287
.10	100	10.000	0.1313	2.0229	0.4102	0.2526	0.1462
.05	100	10.000	0.1401	2.2471	0.4667	0.2701	0.1772
.01	100	10.000	0.1579	2.7201	0.5803	0.3058	0.2416

Table E.37 Critical Values: Sample size N, phi = 15, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	15.000	0.3106	0.5207	0.0881	0.5090	0.0779
.15	5	15.000	0.3269	0.5643	0.0970	0.5287	0.0856
.10	5	15.000	0.3471	0.6228	0.1091	0.5545	0.0955
.05	5	15.000	0.3758	0.7179	0.1289	0.5912	0.1116
.01	5	15.000	0.4314	0.9327	0.1791	0.6770	0.1494
.20	10	15.000	0.2395	0.5768	0.0981	0.3968	0.0786
.15	10	15.000	0.2514	0.6282	0.1091	0.4164	0.0870
.10	10	15.000	0.2669	0.7011	0.1245	0.4431	0.0987
.05	10	15.000	0.2909	0.8208	0.1507	0.4861	0.1183
.01	10	15.000	0.3368	1.1004	0.2116	0.5743	0.1625
.20	15	15.000	0.2058	0.6238	0.1080	0.3503	0.0796
.15	15	15.000	0.2159	0.6784	0.1201	0.3689	0.0884
.10	15	15.000	0.2291	0.7564	0.1373	0.3939	0.1008
.05	15	15.000	0.2500	0.8890	0.1666	0.4342	0.1218
.01	15	15.000	0.2907	1.1960	0.2349	0.5149	0.1697
.20	20	15.000	0.1855	0.6701	0.1179	0.3229	0.0809
.15	20	15.000	0.1944	0.7273	0.1309	0.3400	0.0899
.10	20	15.000	0.2062	0.8073	0.1491	0.3632	0.1026
.05	20	15.000	0.2241	0.9473	0.1803	0.3984	0.1243
.01	20	15.000	0.2601	1.2713	0.2529	0.4701	0.1739
.20	25	15.000	0.1717	0.7147	0.1276	0.3040	0.0823
.15	25	15.000	0.1798	0.7751	0.1415	0.3201	0.0915
.10	25	15.000	0.1905	0.8593	0.1611	0.3412	0.1047
.05	25	15.000	0.2072	1.0032	0.1944	0.3745	0.1267
.01	25	15.000	0.2396	1.3392	0.2692	0.4391	0.1776

Table E.38 Critical Values: Sample size N, phi = 15, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	15.000	0.1613	0.7606	0.1375	0.2896	0.0838
.15	30	15.000	0.1689	0.8232	0.1524	0.3046	0.0933
.10	30	15.000	0.1787	0.9116	0.1731	0.3242	0.1065
.05	30	15.000	0.1939	1.0589	0.2076	0.3544	0.1293
.01	30	15.000	0.2236	1.4052	0.2859	0.4139	0.1816
.20	35	15.000	0.1533	0.8038	0.1470	0.2781	0.0851
.15	35	15.000	0.1603	0.8688	0.1625	0.2921	0.0948
.10	35	15.000	0.1694	0.9594	0.1841	0.3104	0.1083
.05	35	15.000	0.1837	1.1161	0.2202	0.3388	0.1316
.01	35	15.000	0.2114	1.4681	0.3014	0.3943	0.1849
.20	40	15.000	0.1466	0.8474	0.1563	0.2682	0.0862
.15	40	15.000	0.1532	0.9140	0.1725	0.2814	0.0961
.10	40	15.000	0.1618	1.0065	0.1949	0.2987	0.1099
.05	40	15.000	0.1751	1.1663	0.2323	0.3252	0.1334
.01	40	15.000	0.2013	1.5297	0.3149	0.3776	0.1878
.20	45	15.000	0.1411	0.8928	0.1662	0.2600	0.0878
.15	45	15.000	0.1475	0.9614	0.1829	0.2727	0.0978
.10	45	15.000	0.1557	1.0563	0.2063	0.2893	0.1120
.05	45	15.000	0.1684	1.2180	0.2445	0.3146	0.1360
.01	45	15.000	0.1934	1.5981	0.3307	0.3645	0.1927
.20	50	15.000	0.1366	0.9371	0.1757	0.2531	0.0894
.15	50	15.000	0.1426	1.0074	0.1931	0.2652	0.0995
.10	50	15.000	0.1504	1.1051	0.2170	0.2807	0.1139
.05	50	15.000	0.1623	1.2709	0.2559	0.3047	0.1383
.01	50	15.000	0.1860	1.6456	0.3421	0.3520	0.1938

Table E.39 Critical Values: Sample size N, phi = 15, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	15.000	0.1290	1.0250	0.1947	0.2413	0.0923
.15	60	15.000	0.1346	1.1000	0.2135	0.2525	0.1028
.10	60	15.000	0.1419	1.2040	0.2388	0.2672	0.1175
.05	60	15.000	0.1529	1.3746	0.2800	0.2891	0.1432
.01	60	15.000	0.1746	1.7737	0.3716	0.3326	0.2014
.20	70	15.000	0.1234	1.1149	0.2135	0.2324	0.0955
.15	70	15.000	0.1284	1.1897	0.2318	0.2425	0.1062
.10	70	15.000	0.1352	1.2961	0.2584	0.2560	0.1208
.05	70	15.000	0.1456	1.4777	0.3023	0.2769	0.1466
.01	70	15.000	0.1651	1.8740	0.3947	0.3160	0.2079
.20	80	15.000	0.1184	1.2002	0.2313	0.2242	0.0975
.15	80	15.000	0.1231	1.2793	0.2511	0.2338	0.1087
.10	80	15.000	0.1296	1.3883	0.2780	0.2467	0.1243
.05	80	15.000	0.1391	1.5754	0.3231	0.2657	0.1507
.01	80	15.000	0.1577	1.9810	0.4184	0.3028	0.2098
.20	90	15.000	0.1144	1.2877	0.2491	0.2176	0.1007
.15	90	15.000	0.1190	1.3695	0.2701	0.2269	0.1121
.10	90	15.000	0.1250	1.4818	0.2992	0.2388	0.1282
.05	90	15.000	0.1342	1.6701	0.3448	0.2574	0.1554
.01	90	15.000	0.1524	2.1002	0.4445	0.2937	0.2179
.20	100	15.000	0.1110	1.3688	0.2658	0.2119	0.1028
.15	100	15.000	0.1153	1.4541	0.2882	0.2206	0.1145
.10	100	15.000	0.1210	1.5776	0.3178	0.2319	0.1309
.05	100	15.000	0.1297	1.7708	0.3665	0.2494	0.1586
.01	100	15.000	0.1470	2.2080	0.4678	0.2839	0.2199

Table E.40 Critical Values: Sample size N, phi = 20, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	20.000	0.3083	0.5132	0.0865	0.5081	0.0778
.15	5	20.000	0.3242	0.5565	0.0953	0.5273	0.0854
.10	5	20.000	0.3436	0.6145	0.1071	0.5528	0.0954
.05	5	20.000	0.3717	0.7084	0.1263	0.5888	0.1113
.01	5	20.000	0.4265	0.9214	0.1744	0.6696	0.1487
.20	10	20.000	0.2354	0.5585	0.0941	0.3915	0.0781
.15	10	20.000	0.2470	0.6092	0.1046	0.4105	0.0864
.10	10	20.000	0.2621	0.6793	0.1192	0.4359	0.0980
.05	10	20.000	0.2856	0.7970	0.1440	0.4773	0.1174
.01	10	20.000	0.3309	1.0689	0.2021	0.5629	0.1611
.20	15	20.000	0.2010	0.5942	0.1015	0.3424	0.0789
.15	15	20.000	0.2108	0.6473	0.1128	0.3600	0.0875
.10	15	20.000	0.2237	0.7224	0.1288	0.3841	0.0996
.05	15	20.000	0.2441	0.8510	0.1565	0.4228	0.1202
.01	15	20.000	0.2842	1.1458	0.2205	0.5018	0.1671
.20	20	20.000	0.1802	0.6294	0.1088	0.3132	0.0797
.15	20	20.000	0.1888	0.6840	0.1209	0.3296	0.0886
.10	20	20.000	0.2004	0.7614	0.1379	0.3521	0.1010
.05	20	20.000	0.2182	0.8949	0.1671	0.3868	0.1221
.01	20	20.000	0.2536	1.2049	0.2348	0.4573	0.1708
.20	25	20.000	0.1662	0.6632	0.1162	0.2935	0.0808
.15	25	20.000	0.1741	0.7211	0.1291	0.3089	0.0899
.10	25	20.000	0.1846	0.8011	0.1473	0.3296	0.1025
.05	25	20.000	0.2010	0.9381	0.1780	0.3622	0.1240
.01	25	20.000	0.2330	1.2551	0.2485	0.4261	0.1738

Table E.41 Critical Values: Sample size N, phi = 20, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	20.000	0.1556	0.6981	0.1239	0.2786	0.0819
.15	30	20.000	0.1630	0.7576	0.1374	0.2931	0.0911
.10	30	20.000	0.1727	0.8411	0.1564	0.3122	0.1040
.05	30	20.000	0.1876	0.9810	0.1883	0.3419	0.1260
.01	30	20.000	0.2172	1.3123	0.2624	0.4011	0.1771
.20	35	20.000	0.1474	0.7309	0.1311	0.2666	0.0828
.15	35	20.000	0.1544	0.7917	0.1452	0.2803	0.0922
.10	35	20.000	0.1634	0.8773	0.1650	0.2983	0.1054
.05	35	20.000	0.1774	1.0237	0.1983	0.3262	0.1278
.01	35	20.000	0.2049	1.3578	0.2741	0.3812	0.1793
.20	40	20.000	0.1407	0.7628	0.1381	0.2565	0.0837
.15	40	20.000	0.1471	0.8256	0.1527	0.2693	0.0931
.10	40	20.000	0.1557	0.9126	0.1732	0.2864	0.1064
.05	40	20.000	0.1688	1.0608	0.2077	0.3126	0.1293
.01	40	20.000	0.1947	1.4030	0.2847	0.3644	0.1819
.20	45	20.000	0.1352	0.7976	0.1456	0.2482	0.0848
.15	45	20.000	0.1414	0.8618	0.1607	0.2607	0.0946
.10	45	20.000	0.1495	0.9497	0.1820	0.2769	0.1082
.05	45	20.000	0.1621	1.1031	0.2177	0.3020	0.1314
.01	45	20.000	0.1868	1.4598	0.2978	0.3513	0.1859
.20	50	20.000	0.1306	0.8312	0.1529	0.2412	0.0860
.15	50	20.000	0.1365	0.8960	0.1686	0.2530	0.0957
.10	50	20.000	0.1441	0.9871	0.1903	0.2683	0.1095
.05	50	20.000	0.1559	1.1417	0.2266	0.2918	0.1329
.01	50	20.000	0.1794	1.4946	0.3062	0.3388	0.1865

Table E.42 Critical Values: Sample size N, phi = 20, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	20.000	0.1230	0.8982	0.1671	0.2293	0.0882
.15	60	20.000	0.1284	0.9664	0.1843	0.2402	0.0982
.10	60	20.000	0.1357	1.0598	0.2072	0.2547	0.1122
.05	60	20.000	0.1466	1.2213	0.2450	0.2764	0.1368
.01	60	20.000	0.1680	1.5939	0.3303	0.3194	0.1944
.20	70	20.000	0.1172	0.9645	0.1817	0.2200	0.0908
.15	70	20.000	0.1223	1.0345	0.1987	0.2304	0.1007
.10	70	20.000	0.1288	1.1321	0.2226	0.2433	0.1149
.05	70	20.000	0.1389	1.2994	0.2623	0.2636	0.1395
.01	70	20.000	0.1588	1.6739	0.3491	0.3033	0.1972
.20	80	20.000	0.1122	1.0294	0.1957	0.2119	0.0920
.15	80	20.000	0.1169	1.1006	0.2133	0.2214	0.1026
.10	80	20.000	0.1233	1.2012	0.2375	0.2341	0.1174
.05	80	20.000	0.1327	1.3728	0.2787	0.2529	0.1420
.01	80	20.000	0.1511	1.7524	0.3665	0.2896	0.1991
.20	90	20.000	0.1083	1.0958	0.2093	0.2055	0.0948
.15	90	20.000	0.1128	1.1707	0.2283	0.2145	0.1054
.10	90	20.000	0.1186	1.2747	0.2546	0.2262	0.1205
.05	90	20.000	0.1279	1.4500	0.2962	0.2447	0.1463
.01	90	20.000	0.1455	1.8479	0.3879	0.2800	0.2066
.20	100	20.000	0.1049	1.1569	0.2215	0.1997	0.0961
.15	100	20.000	0.1092	1.2371	0.2421	0.2083	0.1071
.10	100	20.000	0.1146	1.3478	0.2695	0.2192	0.1227
.05	100	20.000	0.1233	1.5228	0.3127	0.2365	0.1488
.01	100	20.000	0.1403	1.9333	0.4078	0.2706	0.2064

Table E.43 Critical Values: Sample size N, phi = 25, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	25.000	0.3071	0.5089	0.0856	0.5078	0.0777
.15	5	25.000	0.3226	0.5519	0.0943	0.5266	0.0853
.10	5	25.000	0.3417	0.6096	0.1058	0.5518	0.0953
.05	5	25.000	0.3691	0.7027	0.1245	0.5873	0.1111
.01	5	25.000	0.4232	0.9133	0.1716	0.6647	0.1482
.20	10	25.000	0.2327	0.5471	0.0916	0.3884	0.0777
.15	10	25.000	0.2442	0.5971	0.1018	0.4068	0.0860
.10	10	25.000	0.2590	0.6658	0.1158	0.4315	0.0975
.05	10	25.000	0.2820	0.7820	0.1398	0.4717	0.1167
.01	10	25.000	0.3271	1.0513	0.1960	0.5554	0.1602
.20	15	25.000	0.1979	0.5766	0.0976	0.3374	0.0784
.15	15	25.000	0.2075	0.6285	0.1084	0.3546	0.0869
.10	15	25.000	0.2202	0.7023	0.1237	0.3779	0.0989
.05	15	25.000	0.2402	0.8275	0.1502	0.4155	0.1193
.01	15	25.000	0.2798	1.1139	0.2115	0.4933	0.1653
.20	20	25.000	0.1768	0.6050	0.1035	0.3072	0.0790
.15	20	25.000	0.1853	0.6586	0.1149	0.3233	0.0878
.10	20	25.000	0.1966	0.7340	0.1311	0.3449	0.1001
.05	20	25.000	0.2141	0.8645	0.1591	0.3788	0.1207
.01	20	25.000	0.2493	1.1637	0.2240	0.4487	0.1691
.20	25	25.000	0.1625	0.6327	0.1094	0.2867	0.0799
.15	25	25.000	0.1703	0.6885	0.1216	0.3018	0.0889
.10	25	25.000	0.1806	0.7665	0.1389	0.3219	0.1013
.05	25	25.000	0.1969	0.8990	0.1679	0.3540	0.1224
.01	25	25.000	0.2285	1.2073	0.2354	0.4171	0.1716

Table E.44 Critical Values: Sample size N, phi = 25, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	25.000	0.1518	0.6602	0.1155	0.2712	0.0808
.15	30	25.000	0.1591	0.7177	0.1282	0.2855	0.0898
.10	30	25.000	0.1686	0.7979	0.1461	0.3041	0.1025
.05	30	25.000	0.1834	0.9348	0.1765	0.3335	0.1242
.01	30	25.000	0.2128	1.2530	0.2472	0.3923	0.1742
.20	35	25.000	0.1435	0.6869	0.1214	0.2590	0.0815
.15	35	25.000	0.1503	0.7449	0.1346	0.2724	0.0907
.10	35	25.000	0.1593	0.8272	0.1531	0.2902	0.1035
.05	35	25.000	0.1731	0.9680	0.1845	0.3177	0.1257
.01	35	25.000	0.2005	1.2902	0.2569	0.3725	0.1762
.20	40	25.000	0.1367	0.7121	0.1268	0.2486	0.0821
.15	40	25.000	0.1431	0.7718	0.1405	0.2613	0.0914
.10	40	25.000	0.1515	0.8555	0.1597	0.2781	0.1043
.05	40	25.000	0.1644	0.9977	0.1922	0.3039	0.1266
.01	40	25.000	0.1903	1.3278	0.2658	0.3555	0.1782
.20	45	25.000	0.1312	0.7404	0.1331	0.2404	0.0831
.15	45	25.000	0.1374	0.8008	0.1472	0.2526	0.0925
.10	45	25.000	0.1453	0.8854	0.1669	0.2684	0.1058
.05	45	25.000	0.1577	1.0323	0.2007	0.2932	0.1284
.01	45	25.000	0.1824	1.3746	0.2766	0.3425	0.1815
.20	50	25.000	0.1265	0.7671	0.1388	0.2331	0.0840
.15	50	25.000	0.1323	0.8287	0.1535	0.2447	0.0935
.10	50	25.000	0.1399	0.9152	0.1737	0.2598	0.1070
.05	50	25.000	0.1515	1.0633	0.2081	0.2831	0.1296
.01	50	25.000	0.1749	1.4004	0.2832	0.3299	0.1819

Table E.45 Critical Values: Sample size N, phi = 25, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	25.000	0.1188	0.8205	0.1504	0.2209	0.0858
.15	60	25.000	0.1243	0.8848	0.1664	0.2319	0.0956
.10	60	25.000	0.1313	0.9739	0.1871	0.2460	0.1090
.05	60	25.000	0.1421	1.1286	0.2233	0.2676	0.1324
.01	60	25.000	0.1634	1.4824	0.3030	0.3100	0.1887
.20	70	25.000	0.1129	0.8741	0.1624	0.2116	0.0876
.15	70	25.000	0.1181	0.9388	0.1778	0.2218	0.0974
.10	70	25.000	0.1244	1.0307	0.1999	0.2345	0.1111
.05	70	25.000	0.1343	1.1880	0.2368	0.2544	0.1348
.01	70	25.000	0.1541	1.5511	0.3201	0.2940	0.1904
.20	80	25.000	0.1081	0.9247	0.1733	0.2037	0.0888
.15	80	25.000	0.1127	0.9924	0.1900	0.2130	0.0992
.10	80	25.000	0.1190	1.0876	0.2123	0.2255	0.1133
.05	80	25.000	0.1282	1.2481	0.2504	0.2440	0.1366
.01	80	25.000	0.1467	1.6121	0.3353	0.2809	0.1927
.20	90	25.000	0.1042	0.9801	0.1845	0.1973	0.0910
.15	90	25.000	0.1086	1.0508	0.2027	0.2061	0.1014
.10	90	25.000	0.1143	1.1471	0.2262	0.2175	0.1156
.05	90	25.000	0.1236	1.3127	0.2655	0.2360	0.1405
.01	90	25.000	0.1414	1.6894	0.3537	0.2716	0.1996
.20	100	25.000	0.1007	1.0281	0.1949	0.1914	0.0920
.15	100	25.000	0.1050	1.1022	0.2135	0.2000	0.1024
.10	100	25.000	0.1102	1.2058	0.2383	0.2105	0.1171
.05	100	25.000	0.1189	1.3731	0.2791	0.2277	0.1422
.01	100	25.000	0.1355	1.7654	0.3692	0.2610	0.1995

Table E.46 Critical Values: Sample size N, phi = 30, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	30.000	0.3061	0.5058	0.0850	0.5076	0.0776
hline .15	5	30.000	0.3215	0.5488	0.0936	0.5262	0.0853
.10	5	30.000	0.3403	0.6064	0.1049	0.5512	0.0952
.05	5	30.000	0.3672	0.6988	0.1234	0.5865	0.1109
.01	5	30.000	0.4209	0.9080	0.1696	0.6616	0.1479
.20	10	30.000	0.2309	0.5397	0.0900	0.3864	0.0776
.15	10	30.000	0.2422	0.5894	0.0999	0.4045	0.0858
.10	10	30.000	0.2568	0.6576	0.1137	0.4286	0.0973
.05	10	30.000	0.2796	0.7727	0.1372	0.4679	0.1163
.01	10	30.000	0.3242	1.0386	0.1920	0.5501	0.1592
.20	15	30.000	0.1957	0.5647	0.0949	0.3341	0.0781
.15	15	30.000	0.2052	0.6162	0.1055	0.3509	0.0866
.10	15	30.000	0.2177	0.6886	0.1204	0.3737	0.0984
.05	15	30.000	0.2375	0.8128	0.1462	0.4106	0.1187
.01	15	30.000	0.2767	1.0942	0.2058	0.4870	0.1646
.20	20	30.000	0.1743	0.5885	0.0999	0.3031	0.0786
.15	20	30.000	0.1828	0.6414	0.1109	0.3188	0.0873
.10	20	30.000	0.1938	0.7155	0.1265	0.3397	0.0994
.05	20	30.000	0.2112	0.8439	0.1535	0.3733	0.1199
.01	20	30.000	0.2462	1.1371	0.2161	0.4424	0.1676
.20	25	30.000	0.1598	0.6119	0.1048	0.2818	0.0793
.15	25	30.000	0.1676	0.6665	0.1164	0.2966	0.0881
.10	25	30.000	0.1778	0.7428	0.1329	0.3165	0.1004
.05	25	30.000	0.1938	0.8726	0.1610	0.3479	0.1214
.01	25	30.000	0.2252	1.1758	0.2266	0.4104	0.1699

Table E.47 Critical Values: Sample size N, phi = 30, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	30.000	0.1491	0.6349	0.1099	0.2661	0.0801
.15	30	30.000	0.1563	0.6913	0.1220	0.2800	0.0890
.10	30	30.000	0.1657	0.7696	0.1393	0.2984	0.1015
.05	30	30.000	0.1803	0.9033	0.1683	0.3274	0.1229
.01	30	30.000	0.2095	1.2126	0.2360	0.3857	0.1721
.20	35	30.000	0.1406	0.6571	0.1148	0.2534	0.0806
.15	35	30.000	0.1474	0.7139	0.1273	0.2667	0.0896
.10	35	30.000	0.1563	0.7938	0.1451	0.2842	0.1023
.05	35	30.000	0.1700	0.9308	0.1751	0.3115	0.1241
.01	35	30.000	0.1971	1.2451	0.2448	0.3656	0.1740
.20	40	30.000	0.1338	0.6783	0.1193	0.2430	0.0811
.15	40	30.000	0.1402	0.7361	0.1324	0.2556	0.0902
.10	40	30.000	0.1485	0.8168	0.1506	0.2721	0.1029
.05	40	30.000	0.1612	0.9555	0.1816	0.2975	0.1249
.01	40	30.000	0.1870	1.2784	0.2532	0.3489	0.1756
.20	45	30.000	0.1283	0.7016	0.1245	0.2346	0.0819
.15	45	30.000	0.1343	0.7604	0.1379	0.2466	0.0912
.10	45	30.000	0.1422	0.8429	0.1567	0.2623	0.1042
.05	45	30.000	0.1545	0.9850	0.1890	0.2869	0.1264
.01	45	30.000	0.1792	1.3179	0.2623	0.3362	0.1785
.20	50	30.000	0.1235	0.7241	0.1294	0.2272	0.0827
.15	50	30.000	0.1293	0.7840	0.1432	0.2387	0.0919
.10	50	30.000	0.1368	0.8671	0.1626	0.2536	0.1052
.05	50	30.000	0.1484	1.0100	0.1951	0.2767	0.1274
.01	50	30.000	0.1716	1.3366	0.2677	0.3231	0.1789

Table E.48 Critical Values: Sample size N, phi = 30, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	30.000	0.1157	0.7687	0.1392	0.2148	0.0841
.15	60	30.000	0.1211	0.8309	0.1540	0.2256	0.0938
.10	60	30.000	0.1282	0.9176	0.1740	0.2397	0.1068
.05	60	30.000	0.1389	1.0649	0.2077	0.2611	0.1299
.01	60	30.000	0.1598	1.4088	0.2843	0.3029	0.1843
.20	70	30.000	0.1098	0.8137	0.1489	0.2054	0.0858
.15	70	30.000	0.1149	0.8758	0.1638	0.2155	0.0953
.10	70	30.000	0.1212	0.9632	0.1849	0.2282	0.1086
.05	70	30.000	0.1311	1.1154	0.2192	0.2479	0.1315
.01	70	30.000	0.1506	1.4600	0.2989	0.2870	0.1861
.20	80	30.000	0.1049	0.8568	0.1585	0.1974	0.0867
.15	80	30.000	0.1096	0.9207	0.1737	0.2066	0.0968
.10	80	30.000	0.1158	1.0127	0.1953	0.2191	0.1101
.05	80	30.000	0.1250	1.1641	0.2313	0.2375	0.1332
.01	80	30.000	0.1435	1.5275	0.3128	0.2745	0.1882
.20	90	30.000	0.1011	0.9027	0.1683	0.1912	0.0887
.15	90	30.000	0.1056	0.9693	0.1849	0.2000	0.0986
.10	90	30.000	0.1111	1.0604	0.2071	0.2112	0.1121
.05	90	30.000	0.1201	1.2182	0.2446	0.2291	0.1367
.01	90	30.000	0.1378	1.5808	0.3280	0.2644	0.1937
.20	100	30.000	0.0977	0.9438	0.1767	0.1853	0.0895
.15	100	30.000	0.1018	1.0149	0.1944	0.1937	0.0995
.10	100	30.000	0.1071	1.1116	0.2177	0.2042	0.1138
.05	100	30.000	0.1155	1.2734	0.2561	0.2210	0.1379
.01	100	30.000	0.1321	1.6478	0.3420	0.2542	0.1949

Table E.49 Critical Values: Sample size N, phi = 35, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	35.000	0.3054	0.5039	0.0845	0.5074	0.0776
.15	5	35.000	0.3208	0.5468	0.0932	0.5259	0.0852
.10	5	35.000	0.3394	0.6042	0.1043	0.5507	0.0952
.05	5	35.000	0.3659	0.6962	0.1226	0.5859	0.1110
.01	5	35.000	0.4191	0.9046	0.1681	0.6596	0.1477
.20	10	35.000	0.2295	0.5342	0.0888	0.3849	0.0774
.15	10	35.000	0.2407	0.5834	0.0985	0.4028	0.0856
.10	10	35.000	0.2553	0.6514	0.1121	0.4265	0.0970
.05	10	35.000	0.2778	0.7657	0.1351	0.4651	0.1161
.01	10	35.000	0.3220	1.0297	0.1890	0.5461	0.1590
.20	15	35.000	0.1941	0.5563	0.0930	0.3318	0.0778
.15	15	35.000	0.2035	0.6078	0.1034	0.3483	0.0863
.10	15	35.000	0.2159	0.6790	0.1180	0.3706	0.0981
.05	15	35.000	0.2355	0.8022	0.1432	0.4070	0.1183
.01	15	35.000	0.2743	1.0824	0.2016	0.4824	0.1640
.20	20	35.000	0.1725	0.5767	0.0973	0.3000	0.0783
.15	20	35.000	0.1809	0.6294	0.1081	0.3155	0.0868
.10	20	35.000	0.1918	0.7028	0.1231	0.3360	0.0989
.05	20	35.000	0.2091	0.8293	0.1494	0.3692	0.1193
.01	20	35.000	0.2437	1.1184	0.2104	0.4375	0.1664
.20	25	35.000	0.1579	0.5971	0.1015	0.2783	0.0789
.15	25	35.000	0.1655	0.6508	0.1128	0.2929	0.0876
.10	25	35.000	0.1757	0.7259	0.1289	0.3125	0.0997
.05	25	35.000	0.1914	0.8541	0.1561	0.3434	0.1207
.01	25	35.000	0.2226	1.1526	0.2198	0.4054	0.1684

Table E.50 Critical Values: Sample size N, phi = 35, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	35.000	0.1470	0.6171	0.1058	0.2622	0.0795
.15	30	35.000	0.1541	0.6719	0.1176	0.2759	0.0884
.10	30	35.000	0.1634	0.7495	0.1343	0.2941	0.1008
.05	30	35.000	0.1779	0.8802	0.1623	0.3227	0.1220
.01	30	35.000	0.2068	1.1843	0.2281	0.3803	0.1707
.20	35	35.000	0.1385	0.6359	0.1101	0.2493	0.0799
.15	35	35.000	0.1452	0.6916	0.1221	0.2625	0.0889
.10	35	35.000	0.1539	0.7697	0.1392	0.2796	0.1014
.05	35	35.000	0.1675	0.9046	0.1684	0.3066	0.1230
.01	35	35.000	0.1946	1.2112	0.2361	0.3606	0.1722
.20	40	35.000	0.1316	0.6539	0.1139	0.2388	0.0804
.15	40	35.000	0.1379	0.7104	0.1265	0.2511	0.0893
.10	40	35.000	0.1461	0.7902	0.1440	0.2674	0.1019
.05	40	35.000	0.1588	0.9259	0.1741	0.2927	0.1237
.01	40	35.000	0.1843	1.2419	0.2429	0.3435	0.1738
.20	45	35.000	0.1261	0.6742	0.1184	0.2303	0.0811
.15	45	35.000	0.1320	0.7317	0.1314	0.2421	0.0902
.10	45	35.000	0.1399	0.8121	0.1493	0.2577	0.1031
.05	45	35.000	0.1521	0.9510	0.1803	0.2820	0.1249
.01	45	35.000	0.1766	1.2766	0.2521	0.3310	0.1766
.20	50	35.000	0.1212	0.6934	0.1226	0.2226	0.0818
.15	50	35.000	0.1270	0.7518	0.1358	0.2340	0.0908
.10	50	35.000	0.1344	0.8328	0.1543	0.2488	0.1039
.05	50	35.000	0.1459	0.9729	0.1859	0.2718	0.1258
.01	50	35.000	0.1689	1.2946	0.2565	0.3178	0.1766

Table E.51 Critical Values: Sample size N, phi = 35, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	35.000	0.1133	0.7312	0.1308	0.2100	0.0829
.15	60	35.000	0.1186	0.7908	0.1449	0.2207	0.0923
.10	60	35.000	0.1257	0.8758	0.1642	0.2348	0.1052
.05	60	35.000	0.1364	1.0188	0.1966	0.2562	0.1280
.01	60	35.000	0.1573	1.3577	0.2715	0.2980	0.1809
.20	70	35.000	0.1075	0.7702	0.1393	0.2008	0.0843
.15	70	35.000	0.1124	0.8304	0.1535	0.2106	0.0939
.10	70	35.000	0.1187	0.9174	0.1737	0.2232	0.1069
.05	70	35.000	0.1287	1.0649	0.2072	0.2431	0.1295
.01	70	35.000	0.1480	1.4019	0.2834	0.2816	0.1828
.20	80	35.000	0.1026	0.8061	0.1475	0.1927	0.0850
.15	80	35.000	0.1072	0.8673	0.1622	0.2019	0.0948
.10	80	35.000	0.1133	0.9564	0.1826	0.2141	0.1081
.05	80	35.000	0.1225	1.1023	0.2181	0.2326	0.1311
.01	80	35.000	0.1408	1.4553	0.2953	0.2690	0.1849
.20	90	35.000	0.0987	0.8480	0.1562	0.1863	0.0869
.15	90	35.000	0.1031	0.9118	0.1720	0.1952	0.0966
.10	90	35.000	0.1087	0.9991	0.1930	0.2062	0.1100
.05	90	35.000	0.1176	1.1539	0.2292	0.2241	0.1338
.01	90	35.000	0.1355	1.5048	0.3099	0.2598	0.1889
.20	100	35.000	0.0953	0.8815	0.1636	0.1806	0.0875
.15	100	35.000	0.0994	0.9507	0.1802	0.1888	0.0973
.10	100	35.000	0.1046	1.0412	0.2020	0.1992	0.1111
.05	100	35.000	0.1129	1.1985	0.2392	0.2159	0.1349
.01	100	35.000	0.1297	1.5710	0.3217	0.2495	0.1908

Table E.52 Critical Values: Sample size N, phi = 40, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	40.000	0.3049	0.5023	0.0842	0.5073	0.0776
.15	5	40.000	0.3201	0.5452	0.0928	0.5258	0.0852
.10	5	40.000	0.3386	0.6026	0.1038	0.5504	0.0952
.05	5	40.000	0.3648	0.6940	0.1219	0.5854	0.1109
.01	5	40.000	0.4179	0.9018	0.1671	0.6578	0.1475
.20	10	40.000	0.2285	0.5302	0.0879	0.3838	0.0773
.15	10	40.000	0.2396	0.5793	0.0974	0.4015	0.0855
.10	10	40.000	0.2541	0.6468	0.1109	0.4249	0.0968
.05	10	40.000	0.2765	0.7602	0.1336	0.4628	0.1159
.01	10	40.000	0.3205	1.0217	0.1866	0.5432	0.1587
.20	15	40.000	0.1928	0.5502	0.0917	0.3299	0.0776
.15	15	40.000	0.2022	0.6015	0.1018	0.3464	0.0861
.10	15	40.000	0.2145	0.6719	0.1162	0.3684	0.0978
.05	15	40.000	0.2339	0.7939	0.1409	0.4041	0.1180
.01	15	40.000	0.2724	1.0727	0.1981	0.4786	0.1634
.20	20	40.000	0.1711	0.5676	0.0953	0.2975	0.0780
.15	20	40.000	0.1794	0.6202	0.1059	0.3130	0.0865
.10	20	40.000	0.1903	0.6927	0.1207	0.3332	0.0985
.05	20	40.000	0.2074	0.8184	0.1465	0.3661	0.1189
.01	20	40.000	0.2417	1.1060	0.2064	0.4335	0.1657
.20	25	40.000	0.1563	0.5858	0.0990	0.2756	0.0785
.15	25	40.000	0.1640	0.6389	0.1101	0.2900	0.0872
.10	25	40.000	0.1740	0.7135	0.1258	0.3093	0.0993
.05	25	40.000	0.1896	0.8402	0.1524	0.3398	0.1201
.01	25	40.000	0.2205	1.1340	0.2146	0.4013	0.1673

Table E.53 Critical Values: Sample size N, phi = 40, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	40.000	0.1454	0.6033	0.1028	0.2592	0.0791
.15	30	40.000	0.1524	0.6578	0.1143	0.2727	0.0879
.10	30	40.000	0.1616	0.7341	0.1305	0.2907	0.1002
.05	30	40.000	0.1760	0.8633	0.1578	0.3190	0.1213
.01	30	40.000	0.2047	1.1629	0.2222	0.3760	0.1697
.20	35	40.000	0.1368	0.6200	0.1065	0.2462	0.0795
.15	35	40.000	0.1435	0.6748	0.1182	0.2591	0.0884
.10	35	40.000	0.1522	0.7522	0.1348	0.2762	0.1008
.05	35	40.000	0.1656	0.8840	0.1632	0.3028	0.1222
.01	35	40.000	0.1925	1.1876	0.2294	0.3565	0.1709
.20	40	40.000	0.1299	0.6357	0.1098	0.2354	0.0799
.15	40	40.000	0.1361	0.6914	0.1220	0.2477	0.0887
.10	40	40.000	0.1443	0.7697	0.1390	0.2638	0.1011
.05	40	40.000	0.1569	0.9032	0.1682	0.2889	0.1227
.01	40	40.000	0.1822	1.2146	0.2355	0.3394	0.1722
.20	45	40.000	0.1243	0.6535	0.1138	0.2268	0.0805
.15	45	40.000	0.1302	0.7100	0.1264	0.2385	0.0895
.10	45	40.000	0.1380	0.7892	0.1438	0.2539	0.1021
.05	45	40.000	0.1501	0.9252	0.1737	0.2781	0.1238
.01	45	40.000	0.1745	1.2483	0.2442	0.3269	0.1753
.20	50	40.000	0.1194	0.6707	0.1175	0.2191	0.0811
.15	50	40.000	0.1251	0.7279	0.1302	0.2304	0.0901
.10	50	40.000	0.1325	0.8068	0.1481	0.2450	0.1029
.05	50	40.000	0.1439	0.9445	0.1787	0.2679	0.1248
.01	50	40.000	0.1668	1.2603	0.2476	0.3136	0.1751

Table E.54 Critical Values: Sample size N, phi = 40, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	40.000	0.1114	0.7022	0.1246	0.2063	0.0819
.15	60	40.000	0.1168	0.7605	0.1378	0.2169	0.0913
.10	60	40.000	0.1237	0.8434	0.1567	0.2309	0.1040
.05	60	40.000	0.1344	0.9846	0.1878	0.2521	0.1265
.01	60	40.000	0.1551	1.3151	0.2619	0.2936	0.1797
.20	70	40.000	0.1057	0.7379	0.1322	0.1972	0.0833
.15	70	40.000	0.1105	0.7966	0.1458	0.2067	0.0928
.10	70	40.000	0.1168	0.8822	0.1652	0.2193	0.1054
.05	70	40.000	0.1267	1.0251	0.1977	0.2390	0.1281
.01	70	40.000	0.1460	1.3533	0.2712	0.2777	0.1803
.20	80	40.000	0.1007	0.7696	0.1394	0.1889	0.0839
.15	80	40.000	0.1053	0.8290	0.1537	0.1981	0.0936
.10	80	40.000	0.1114	0.9154	0.1734	0.2103	0.1065
.05	80	40.000	0.1205	1.0595	0.2077	0.2285	0.1294
.01	80	40.000	0.1389	1.3976	0.2814	0.2652	0.1828
.20	90	40.000	0.0968	0.8065	0.1472	0.1826	0.0856
.15	90	40.000	0.1012	0.8675	0.1622	0.1913	0.0952
.10	90	40.000	0.1067	0.9540	0.1824	0.2023	0.1084
.05	90	40.000	0.1156	1.1060	0.2177	0.2201	0.1316
.01	90	40.000	0.1332	1.4470	0.2951	0.2552	0.1857
.20	100	40.000	0.0934	0.8353	0.1536	0.1767	0.0860
.15	100	40.000	0.0974	0.9005	0.1695	0.1848	0.0958
.10	100	40.000	0.1027	0.9906	0.1905	0.1953	0.1091
.05	100	40.000	0.1110	1.1441	0.2264	0.2120	0.1328
.01	100	40.000	0.1275	1.5043	0.3060	0.2451	0.1874

Table E.55 Critical Values: Sample size N, phi = 50, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	50.000	0.3043	0.5001	0.0837	0.5072	0.0776
.15	5	50.000	0.3193	0.5426	0.0922	0.5255	0.0851
.10	5	50.000	0.3375	0.5998	0.1031	0.5499	0.0951
.05	5	50.000	0.3632	0.6909	0.1210	0.5847	0.1107
.01	5	50.000	0.4161	0.8981	0.1658	0.6555	0.1473
.20	10	50.000	0.2271	0.5246	0.0866	0.3822	0.0772
.15	10	50.000	0.2380	0.5734	0.0960	0.3998	0.0853
.10	10	50.000	0.2523	0.6408	0.1092	0.4227	0.0966
.05	10	50.000	0.2745	0.7525	0.1317	0.4598	0.1156
.01	10	50.000	0.3182	1.0110	0.1834	0.5391	0.1583
.20	15	50.000	0.1910	0.5414	0.0897	0.3275	0.0774
.15	15	50.000	0.2002	0.5920	0.0996	0.3435	0.0858
.10	15	50.000	0.2124	0.6619	0.1137	0.3651	0.0975
.05	15	50.000	0.2317	0.7829	0.1376	0.4002	0.1176
.01	15	50.000	0.2696	1.0570	0.1934	0.4733	0.1625
.20	20	50.000	0.1690	0.5552	0.0924	0.2941	0.0776
.15	20	50.000	0.1772	0.6070	0.1029	0.3093	0.0861
.10	20	50.000	0.1880	0.6789	0.1172	0.3291	0.0980
.05	20	50.000	0.2050	0.8032	0.1423	0.3614	0.1183
.01	20	50.000	0.2388	1.0875	0.2004	0.4279	0.1647
.20	25	50.000	0.1541	0.5699	0.0956	0.2717	0.0781
.15	25	50.000	0.1616	0.6222	0.1062	0.2857	0.0866
.10	25	50.000	0.1715	0.6965	0.1213	0.3048	0.0986
.05	25	50.000	0.1869	0.8212	0.1470	0.3346	0.1192
.01	25	50.000	0.2176	1.1097	0.2074	0.3954	0.1662

Table E.56 Critical Values: Sample size N, phi = 50, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	50.000	0.1430	0.5841	0.0985	0.2548	0.0786
.15	30	50.000	0.1499	0.6379	0.1096	0.2681	0.0872
.10	30	50.000	0.1590	0.7126	0.1252	0.2857	0.0993
.05	30	50.000	0.1733	0.8389	0.1515	0.3137	0.1202
.01	30	50.000	0.2015	1.1351	0.2136	0.3698	0.1681
.20	35	50.000	0.1344	0.5976	0.1015	0.2416	0.0788
.15	35	50.000	0.1409	0.6512	0.1128	0.2541	0.0876
.10	35	50.000	0.1495	0.7276	0.1287	0.2709	0.0998
.05	35	50.000	0.1627	0.8555	0.1559	0.2971	0.1210
.01	35	50.000	0.1894	1.1550	0.2195	0.3503	0.1689
.20	40	50.000	0.1273	0.6101	0.1041	0.2305	0.0790
.15	40	50.000	0.1335	0.6644	0.1157	0.2425	0.0878
.10	40	50.000	0.1415	0.7409	0.1320	0.2583	0.1001
.05	40	50.000	0.1540	0.8710	0.1599	0.2831	0.1213
.01	40	50.000	0.1791	1.1744	0.2247	0.3333	0.1699
.20	45	50.000	0.1217	0.6244	0.1074	0.2216	0.0796
.15	45	50.000	0.1274	0.6796	0.1192	0.2330	0.0885
.10	45	50.000	0.1351	0.7575	0.1358	0.2483	0.1009
.05	45	50.000	0.1472	0.8899	0.1644	0.2722	0.1223
.01	45	50.000	0.1714	1.2046	0.2325	0.3206	0.1729
.20	50	50.000	0.1167	0.6385	0.1103	0.2138	0.0800
.15	50	50.000	0.1223	0.6945	0.1225	0.2249	0.0891
.10	50	50.000	0.1296	0.7715	0.1394	0.2394	0.1016
.05	50	50.000	0.1409	0.9052	0.1687	0.2619	0.1231
.01	50	50.000	0.1637	1.2141	0.2348	0.3073	0.1725

Table E.57 Critical Values: Sample size N, phi = 50, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	50.000	0.1087	0.6620	0.1160	0.2010	0.0807
.15	60	50.000	0.1139	0.7199	0.1285	0.2111	0.0898
.10	60	50.000	0.1208	0.8018	0.1466	0.2250	0.1024
.05	60	50.000	0.1313	0.9373	0.1768	0.2460	0.1247
.01	60	50.000	0.1522	1.2623	0.2470	0.2877	0.1759
.20	70	50.000	0.1030	0.6916	0.1222	0.1917	0.0819
.15	70	50.000	0.1076	0.7498	0.1350	0.2011	0.0912
.10	70	50.000	0.1139	0.8325	0.1533	0.2135	0.1037
.05	70	50.000	0.1236	0.9718	0.1845	0.2330	0.1257
.01	70	50.000	0.1427	1.2921	0.2533	0.2711	0.1759
.20	80	50.000	0.0978	0.7173	0.1278	0.1831	0.0823
.15	80	50.000	0.1024	0.7743	0.1410	0.1924	0.0916
.10	80	50.000	0.1083	0.8573	0.1604	0.2041	0.1043
.05	80	50.000	0.1174	0.9974	0.1914	0.2222	0.1266
.01	80	50.000	0.1356	1.3302	0.2637	0.2587	0.1786
.20	90	50.000	0.0939	0.7476	0.1343	0.1767	0.0837
.15	90	50.000	0.0982	0.8065	0.1482	0.1853	0.0931
.10	90	50.000	0.1037	0.8883	0.1677	0.1963	0.1060
.05	90	50.000	0.1125	1.0349	0.2005	0.2139	0.1287
.01	90	50.000	0.1297	1.3677	0.2747	0.2483	0.1814
.20	100	50.000	0.0904	0.7699	0.1395	0.1708	0.0839
.15	100	50.000	0.0944	0.8318	0.1538	0.1789	0.0933
.10	100	50.000	0.0997	0.9181	0.1741	0.1894	0.1064
.05	100	50.000	0.1078	1.0672	0.2080	0.2056	0.1295
.01	100	50.000	0.1245	1.4060	0.2831	0.2391	0.1832

Table E.58 Critical Values: Sample size N, phi = 60, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	60.000	0.3038	0.4984	0.0833	0.5071	0.0775
.15	5	60.000	0.3187	0.5409	0.0918	0.5253	0.0851
.10	5	60.000	0.3368	0.5980	0.1026	0.5495	0.0950
.05	5	60.000	0.3622	0.6890	0.1204	0.5843	0.1106
.01	5	60.000	0.4149	0.8952	0.1648	0.6543	0.1471
.20	10	60.000	0.2261	0.5207	0.0858	0.3812	0.0771
.15	10	60.000	0.2369	0.5693	0.0950	0.3986	0.0852
.10	10	60.000	0.2512	0.6364	0.1082	0.4213	0.0965
.05	10	60.000	0.2732	0.7478	0.1304	0.4578	0.1154
.01	10	60.000	0.3167	1.0038	0.1813	0.5361	0.1580
.20	15	60.000	0.1898	0.5355	0.0884	0.3258	0.0773
.15	15	60.000	0.1989	0.5858	0.0981	0.3416	0.0856
.10	15	60.000	0.2110	0.6549	0.1119	0.3629	0.0972
.05	15	60.000	0.2301	0.7750	0.1355	0.3975	0.1172
.01	15	60.000	0.2678	1.0477	0.1904	0.4697	0.1620
.20	20	60.000	0.1676	0.5470	0.0906	0.2920	0.0774
.15	20	60.000	0.1757	0.5983	0.1009	0.3067	0.0858
.10	20	60.000	0.1864	0.6695	0.1149	0.3263	0.0976
.05	20	60.000	0.2031	0.7924	0.1393	0.3581	0.1178
.01	20	60.000	0.2368	1.0739	0.1964	0.4239	0.1642
.20	25	60.000	0.1525	0.5595	0.0932	0.2691	0.0778
.15	25	60.000	0.1599	0.6112	0.1035	0.2828	0.0862
.10	25	60.000	0.1698	0.6847	0.1184	0.3015	0.0982
.05	25	60.000	0.1850	0.8081	0.1434	0.3310	0.1188
.01	25	60.000	0.2155	1.0932	0.2021	0.3912	0.1653

Table E.59 Critical Values: Sample size N, phi = 60, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	60.000	0.1414	0.5717	0.0957	0.2519	0.0782
.15	30	60.000	0.1482	0.6244	0.1063	0.2650	0.0868
.10	30	60.000	0.1572	0.6983	0.1216	0.2822	0.0987
.05	30	60.000	0.1713	0.8230	0.1472	0.3097	0.1195
.01	30	60.000	0.1992	1.1164	0.2076	0.3652	0.1671
.20	35	60.000	0.1326	0.5829	0.0981	0.2383	0.0783
.15	35	60.000	0.1391	0.6355	0.1091	0.2507	0.0870
.10	35	60.000	0.1475	0.7110	0.1245	0.2672	0.0991
.05	35	60.000	0.1607	0.8369	0.1510	0.2931	0.1202
.01	35	60.000	0.1873	1.1344	0.2130	0.3461	0.1679
.20	40	60.000	0.1255	0.5926	0.1003	0.2270	0.0785
.15	40	60.000	0.1316	0.6466	0.1114	0.2390	0.0872
.10	40	60.000	0.1395	0.7218	0.1272	0.2544	0.0994
.05	40	60.000	0.1518	0.8495	0.1543	0.2788	0.1203
.01	40	60.000	0.1769	1.1478	0.2173	0.3288	0.1686
.20	45	60.000	0.1198	0.6048	0.1031	0.2180	0.0789
.15	45	60.000	0.1255	0.6594	0.1144	0.2292	0.0877
.10	45	60.000	0.1331	0.7358	0.1304	0.2443	0.1000
.05	45	60.000	0.1450	0.8656	0.1581	0.2680	0.1213
.01	45	60.000	0.1692	1.1734	0.2243	0.3161	0.1713
.20	50	60.000	0.1148	0.6173	0.1055	0.2101	0.0793
.15	50	60.000	0.1204	0.6722	0.1173	0.2211	0.0883
.10	50	60.000	0.1276	0.7479	0.1336	0.2354	0.1008
.05	50	60.000	0.1388	0.8777	0.1617	0.2576	0.1218
.01	50	60.000	0.1612	1.1796	0.2259	0.3025	0.1706

Table E.60 Critical Values: Sample size N, phi = 60, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	60.000	0.1068	0.6364	0.1102	0.1972	0.0799
.15	60	60.000	0.1118	0.6928	0.1225	0.2072	0.0889
.10	60	60.000	0.1187	0.7722	0.1392	0.2207	0.1014
.05	60	60.000	0.1291	0.9047	0.1683	0.2415	0.1231
.01	60	60.000	0.1499	1.2190	0.2367	0.2831	0.1735
.20	70	60.000	0.1008	0.6609	0.1154	0.1875	0.0809
.15	70	60.000	0.1055	0.7171	0.1279	0.1969	0.0900
.10	70	60.000	0.1117	0.7974	0.1451	0.2092	0.1024
.05	70	60.000	0.1214	0.9332	0.1753	0.2285	0.1243
.01	70	60.000	0.1407	1.2435	0.2407	0.2671	0.1736
.20	80	60.000	0.0958	0.6811	0.1200	0.1791	0.0810
.15	80	60.000	0.1003	0.7384	0.1326	0.1881	0.0904
.10	80	60.000	0.1060	0.8178	0.1512	0.1996	0.1029
.05	80	60.000	0.1151	0.9527	0.1801	0.2177	0.1246
.01	80	60.000	0.1333	1.2786	0.2511	0.2540	0.1756
.20	90	60.000	0.0918	0.7075	0.1256	0.1725	0.0826
.15	90	60.000	0.0960	0.7639	0.1388	0.1810	0.0918
.10	90	60.000	0.1014	0.8463	0.1572	0.1918	0.1044
.05	90	60.000	0.1102	0.9850	0.1888	0.2093	0.1268
.01	90	60.000	0.1272	1.3072	0.2596	0.2433	0.1789
.20	100	60.000	0.0883	0.7267	0.1298	0.1666	0.0826
.15	100	60.000	0.0922	0.7858	0.1437	0.1745	0.0919
.10	100	60.000	0.0975	0.8712	0.1628	0.1850	0.1049
.05	100	60.000	0.1056	1.0161	0.1955	0.2012	0.1275
.01	100	60.000	0.1221	1.3439	0.2686	0.2342	0.1809

Table E.61 Critical Values: Sample size N, phi = 70, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	70.000	0.3035	0.4973	0.0831	0.5070	0.0775
.15	5	70.000	0.3182	0.5397	0.0915	0.5251	0.0851
.10	5	70.000	0.3363	0.5967	0.1023	0.5493	0.0949
.05	5	70.000	0.3615	0.6873	0.1199	0.5840	0.1105
.01	5	70.000	0.4140	0.8931	0.1641	0.6532	0.1469
.20	10	70.000	0.2254	0.5182	0.0852	0.3805	0.0770
.15	10	70.000	0.2360	0.5665	0.0944	0.3977	0.0851
.10	10	70.000	0.2503	0.6332	0.1073	0.4204	0.0963
.05	10	70.000	0.2721	0.7443	0.1294	0.4564	0.1153
.01	10	70.000	0.3154	0.9988	0.1797	0.5336	0.1576
.20	15	70.000	0.1888	0.5312	0.0874	0.3245	0.0771
.15	15	70.000	0.1980	0.5812	0.0970	0.3401	0.0855
.10	15	70.000	0.2099	0.6502	0.1106	0.3613	0.0970
.05	15	70.000	0.2288	0.7696	0.1340	0.3953	0.1170
.01	15	70.000	0.2663	1.0409	0.1879	0.4669	0.1617
.20	20	70.000	0.1665	0.5412	0.0893	0.2904	0.0773
.15	20	70.000	0.1746	0.5921	0.0994	0.3050	0.0856
.10	20	70.000	0.1852	0.6629	0.1132	0.3243	0.0974
.05	20	70.000	0.2019	0.7854	0.1373	0.3557	0.1175
.01	20	70.000	0.2353	1.0644	0.1937	0.4209	0.1636
.20	25	70.000	0.1513	0.5519	0.0915	0.2671	0.0775
.15	25	70.000	0.1587	0.6034	0.1016	0.2806	0.0859
.10	25	70.000	0.1685	0.6762	0.1163	0.2992	0.0979
.05	25	70.000	0.1837	0.7990	0.1410	0.3284	0.1184
.01	25	70.000	0.2140	1.0811	0.1983	0.3882	0.1645

Table E.62 Critical Values: Sample size N, phi = 70, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	70.000	0.1402	0.5631	0.0936	0.2498	0.0779
.15	30	70.000	0.1470	0.6151	0.1042	0.2627	0.0865
.10	30	70.000	0.1558	0.6881	0.1190	0.2797	0.0984
.05	30	70.000	0.1699	0.8121	0.1442	0.3070	0.1190
.01	30	70.000	0.1976	1.1042	0.2033	0.3621	0.1662
.20	35	70.000	0.1313	0.5725	0.0957	0.2359	0.0780
.15	35	70.000	0.1378	0.6247	0.1065	0.2483	0.0867
.10	35	70.000	0.1461	0.6990	0.1216	0.2645	0.0987
.05	35	70.000	0.1592	0.8237	0.1474	0.2901	0.1196
.01	35	70.000	0.1856	1.1178	0.2080	0.3427	0.1669
.20	40	70.000	0.1241	0.5805	0.0976	0.2245	0.0781
.15	40	70.000	0.1301	0.6334	0.1085	0.2362	0.0867
.10	40	70.000	0.1380	0.7081	0.1237	0.2516	0.0989
.05	40	70.000	0.1503	0.8339	0.1503	0.2758	0.1197
.01	40	70.000	0.1752	1.1291	0.2117	0.3254	0.1675
.20	45	70.000	0.1183	0.5910	0.1000	0.2153	0.0785
.15	45	70.000	0.1240	0.6449	0.1111	0.2264	0.0872
.10	45	70.000	0.1316	0.7201	0.1267	0.2413	0.0994
.05	45	70.000	0.1434	0.8486	0.1536	0.2648	0.1205
.01	45	70.000	0.1673	1.1519	0.2180	0.3124	0.1699
.20	50	70.000	0.1133	0.6020	0.1021	0.2074	0.0789
.15	50	70.000	0.1189	0.6561	0.1135	0.2182	0.0878
.10	50	70.000	0.1260	0.7309	0.1294	0.2323	0.1002
.05	50	70.000	0.1372	0.8590	0.1568	0.2544	0.1210
.01	50	70.000	0.1595	1.1570	0.2192	0.2990	0.1692

Table E.63 Critical Values: Sample size N, phi = 70, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	70.000	0.1053	0.6183	0.1058	0.1943	0.0794
.15	60	70.000	0.1103	0.6732	0.1178	0.2041	0.0882
.10	60	70.000	0.1169	0.7511	0.1341	0.2173	0.1007
.05	60	70.000	0.1273	0.8820	0.1622	0.2380	0.1218
.01	60	70.000	0.1482	1.1905	0.2289	0.2798	0.1712
.20	70	70.000	0.0993	0.6396	0.1106	0.1844	0.0802
.15	70	70.000	0.1039	0.6940	0.1228	0.1937	0.0892
.10	70	70.000	0.1102	0.7741	0.1392	0.2061	0.1016
.05	70	70.000	0.1196	0.9065	0.1684	0.2250	0.1233
.01	70	70.000	0.1391	1.2182	0.2323	0.2638	0.1722
.20	80	70.000	0.0941	0.6563	0.1144	0.1759	0.0804
.15	80	70.000	0.0986	0.7136	0.1267	0.1848	0.0894
.10	80	70.000	0.1044	0.7908	0.1447	0.1963	0.1018
.05	80	70.000	0.1133	0.9223	0.1725	0.2141	0.1232
.01	80	70.000	0.1313	1.2390	0.2420	0.2501	0.1733
.20	90	70.000	0.0902	0.6797	0.1194	0.1693	0.0816
.15	90	70.000	0.0944	0.7352	0.1320	0.1777	0.0908
.10	90	70.000	0.0998	0.8154	0.1497	0.1885	0.1031
.05	90	70.000	0.1085	0.9511	0.1803	0.2059	0.1253
.01	90	70.000	0.1255	1.2670	0.2493	0.2398	0.1767
.20	100	70.000	0.0866	0.6951	0.1229	0.1633	0.0816
.15	100	70.000	0.0905	0.7521	0.1362	0.1710	0.0907
.10	100	70.000	0.0958	0.8364	0.1543	0.1816	0.1035
.05	100	70.000	0.1039	0.9786	0.1859	0.1978	0.1259
.01	100	70.000	0.1202	1.3024	0.2574	0.2304	0.1782

Table E.64 Critical Values: Sample size N, phi = 80, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	80.000	0.3032	0.4965	0.0829	0.5069	0.0775
.15	5	80.000	0.3180	0.5390	0.0913	0.5251	0.0850
.10	5	80.000	0.3359	0.5959	0.1021	0.5491	0.0949
.05	5	80.000	0.3610	0.6864	0.1196	0.5838	0.1105
.01	5	80.000	0.4134	0.8917	0.1636	0.6524	0.1468
.20	10	80.000	0.2248	0.5162	0.0848	0.3801	0.0770
.15	10	80.000	0.2355	0.5642	0.0939	0.3972	0.0851
.10	10	80.000	0.2497	0.6307	0.1067	0.4196	0.0963
.05	10	80.000	0.2714	0.7416	0.1285	0.4553	0.1151
.01	10	80.000	0.3144	0.9952	0.1787	0.5318	0.1574
.20	15	80.000	0.1882	0.5279	0.0867	0.3236	0.0771
.15	15	80.000	0.1973	0.5776	0.0962	0.3391	0.0854
.10	15	80.000	0.2091	0.6465	0.1097	0.3601	0.0970
.05	15	80.000	0.2280	0.7652	0.1329	0.3939	0.1168
.01	15	80.000	0.2652	1.0357	0.1863	0.4648	0.1615
.20	20	80.000	0.1657	0.5366	0.0883	0.2892	0.0771
.15	20	80.000	0.1738	0.5876	0.0983	0.3036	0.0854
.10	20	80.000	0.1843	0.6577	0.1119	0.3229	0.0972
.05	20	80.000	0.2009	0.7800	0.1358	0.3539	0.1173
.01	20	80.000	0.2342	1.0565	0.1913	0.4187	0.1633
.20	25	80.000	0.1505	0.5463	0.0902	0.2657	0.0774
.15	25	80.000	0.1577	0.5974	0.1003	0.2791	0.0857
.10	25	80.000	0.1675	0.6698	0.1147	0.2974	0.0977
.05	25	80.000	0.1826	0.7923	0.1390	0.3263	0.1181
.01	25	80.000	0.2128	1.0718	0.1956	0.3858	0.1641

Table E.65 Critical Values: Sample size N, phi = 80, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	80.000	0.1392	0.5562	0.0921	0.2481	0.0777
.15	30	80.000	0.1460	0.6075	0.1024	0.2609	0.0862
.10	30	80.000	0.1548	0.6805	0.1170	0.2777	0.0980
.05	30	80.000	0.1687	0.8037	0.1419	0.3047	0.1187
.01	30	80.000	0.1963	1.0931	0.1998	0.3594	0.1657
.20	35	80.000	0.1303	0.5646	0.0939	0.2341	0.0778
.15	35	80.000	0.1367	0.6162	0.1045	0.2463	0.0864
.10	35	80.000	0.1450	0.6901	0.1193	0.2624	0.0984
.05	35	80.000	0.1580	0.8138	0.1447	0.2878	0.1191
.01	35	80.000	0.1843	1.1066	0.2041	0.3401	0.1665
.20	40	80.000	0.1231	0.5713	0.0955	0.2226	0.0778
.15	40	80.000	0.1290	0.6239	0.1061	0.2341	0.0864
.10	40	80.000	0.1368	0.6984	0.1212	0.2494	0.0985
.05	40	80.000	0.1490	0.8228	0.1473	0.2734	0.1193
.01	40	80.000	0.1738	1.1163	0.2077	0.3227	0.1667
.20	45	80.000	0.1172	0.5805	0.0976	0.2133	0.0782
.15	45	80.000	0.1229	0.6339	0.1085	0.2242	0.0868
.10	45	80.000	0.1304	0.7086	0.1237	0.2390	0.0990
.05	45	80.000	0.1421	0.8357	0.1503	0.2622	0.1202
.01	45	80.000	0.1659	1.1356	0.2133	0.3096	0.1689
.20	50	80.000	0.1122	0.5904	0.0995	0.2052	0.0785
.15	50	80.000	0.1177	0.6437	0.1107	0.2159	0.0874
.10	50	80.000	0.1248	0.7179	0.1262	0.2299	0.0997
.05	50	80.000	0.1359	0.8450	0.1530	0.2519	0.1205
.01	50	80.000	0.1582	1.1401	0.2147	0.2963	0.1684

Table E.66 Critical Values: Sample size N, phi = 80, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	80.000	0.1041	0.6042	0.1028	0.1919	0.0789
.15	60	80.000	0.1090	0.6584	0.1144	0.2016	0.0876
.10	60	80.000	0.1155	0.7347	0.1301	0.2145	0.1002
.05	60	80.000	0.1259	0.8649	0.1579	0.2353	0.1210
.01	60	80.000	0.1467	1.1708	0.2222	0.2767	0.1691
.20	70	80.000	0.0980	0.6229	0.1069	0.1820	0.0796
.15	70	80.000	0.1027	0.6778	0.1188	0.1913	0.0886
.10	70	80.000	0.1089	0.7567	0.1350	0.2036	0.1009
.05	70	80.000	0.1182	0.8883	0.1637	0.2223	0.1225
.01	70	80.000	0.1377	1.2022	0.2270	0.2611	0.1711
.20	80	80.000	0.0928	0.6368	0.1101	0.1734	0.0796
.15	80	80.000	0.0973	0.6942	0.1220	0.1823	0.0887
.10	80	80.000	0.1030	0.7684	0.1395	0.1935	0.1012
.05	80	80.000	0.1118	0.8995	0.1664	0.2112	0.1221
.01	80	80.000	0.1298	1.2115	0.2348	0.2472	0.1715
.20	90	80.000	0.0889	0.6573	0.1146	0.1668	0.0809
.15	90	80.000	0.0931	0.7136	0.1270	0.1751	0.0901
.10	90	80.000	0.0984	0.7924	0.1440	0.1857	0.1022
.05	90	80.000	0.1071	0.9276	0.1740	0.2032	0.1244
.01	90	80.000	0.1243	1.2385	0.2414	0.2374	0.1750
.20	100	80.000	0.0853	0.6727	0.1177	0.1606	0.0809
.15	100	80.000	0.0892	0.7293	0.1306	0.1684	0.0899
.10	100	80.000	0.0945	0.8097	0.1479	0.1789	0.1025
.05	100	80.000	0.1025	0.9496	0.1785	0.1950	0.1250
.01	100	80.000	0.1189	1.2726	0.2490	0.2277	0.1765

Table E.67 Critical Values: Sample size N, phi = 100, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	100.000	0.3029	0.4954	0.0827	0.5069	0.0775
.15	5	100.000	0.3174	0.5376	0.0910	0.5250	0.0850
.10	5	100.000	0.3354	0.5948	0.1017	0.5489	0.0949
.05	5	100.000	0.3602	0.6846	0.1192	0.5835	0.1105
.01	5	100.000	0.4125	0.8906	0.1629	0.6514	0.1466
.20	10	100.000	0.2240	0.5135	0.0842	0.3794	0.0769
.15	10	100.000	0.2347	0.5610	0.0931	0.3963	0.0850
.10	10	100.000	0.2487	0.6278	0.1059	0.4186	0.0961
.05	10	100.000	0.2703	0.7379	0.1275	0.4539	0.1150
.01	10	100.000	0.3129	0.9905	0.1771	0.5292	0.1572
.20	15	100.000	0.1872	0.5234	0.0856	0.3223	0.0769
.15	15	100.000	0.1962	0.5727	0.0950	0.3376	0.0852
.10	15	100.000	0.2080	0.6414	0.1084	0.3584	0.0968
.05	15	100.000	0.2265	0.7594	0.1313	0.3917	0.1165
.01	15	100.000	0.2636	1.0285	0.1840	0.4618	0.1610
.20	20	100.000	0.1646	0.5303	0.0869	0.2875	0.0769
.15	20	100.000	0.1726	0.5810	0.0967	0.3017	0.0852
.10	20	100.000	0.1830	0.6507	0.1101	0.3207	0.0970
.05	20	100.000	0.1994	0.7726	0.1337	0.3512	0.1170
.01	20	100.000	0.2323	1.0444	0.1879	0.4149	0.1625
.20	25	100.000	0.1492	0.5384	0.0885	0.2635	0.0771
.15	25	100.000	0.1564	0.5890	0.0983	0.2768	0.0855
.10	25	100.000	0.1660	0.6612	0.1123	0.2948	0.0973
.05	25	100.000	0.1810	0.7822	0.1362	0.3233	0.1175
.01	25	100.000	0.2110	1.0588	0.1915	0.3822	0.1635

Table E.68 Critical Values: Sample size N, phi = 100, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	30	100.000	0.1379	0.5466	0.0900	0.2458	0.0775
.15	30	100.000	0.1445	0.5981	0.1001	0.2583	0.0859
.10	30	100.000	0.1532	0.6696	0.1144	0.2749	0.0977
.05	30	100.000	0.1670	0.7919	0.1386	0.3015	0.1182
.01	30	100.000	0.1944	1.0775	0.1955	0.3557	0.1651
.20	35	100.000	0.1289	0.5535	0.0914	0.2315	0.0774
.15	35	100.000	0.1352	0.6042	0.1016	0.2435	0.0860
.10	35	100.000	0.1434	0.6773	0.1161	0.2594	0.0979
.05	35	100.000	0.1562	0.8005	0.1410	0.2844	0.1185
.01	35	100.000	0.1822	1.0889	0.1989	0.3359	0.1655
.20	40	100.000	0.1215	0.5588	0.0927	0.2198	0.0774
.15	40	100.000	0.1275	0.6106	0.1029	0.2311	0.0860
.10	40	100.000	0.1352	0.6837	0.1177	0.2462	0.0980
.05	40	100.000	0.1472	0.8081	0.1430	0.2698	0.1187
.01	40	100.000	0.1718	1.0968	0.2018	0.3186	0.1658
.20	45	100.000	0.1156	0.5661	0.0943	0.2103	0.0777
.15	45	100.000	0.1212	0.6185	0.1049	0.2211	0.0862
.10	45	100.000	0.1286	0.6924	0.1197	0.2356	0.0984
.05	45	100.000	0.1402	0.8176	0.1456	0.2584	0.1194
.01	45	100.000	0.1638	1.1137	0.2066	0.3054	0.1672
.20	50	100.000	0.1106	0.5743	0.0959	0.2021	0.0780
.15	50	100.000	0.1159	0.6265	0.1067	0.2126	0.0868
.10	50	100.000	0.1230	0.7003	0.1218	0.2264	0.0991
.05	50	100.000	0.1340	0.8253	0.1474	0.2482	0.1196
.01	50	100.000	0.1560	1.1166	0.2077	0.2921	0.1673

Table E.69 Critical Values: Sample size N, phi = 100, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	100.000	0.1023	0.5856	0.0986	0.1886	0.0784
.15	60	100.000	0.1072	0.6395	0.1096	0.1982	0.0871
.10	60	100.000	0.1137	0.7125	0.1249	0.2110	0.0997
.05	60	100.000	0.1239	0.8430	0.1520	0.2314	0.1200
.01	60	100.000	0.1444	1.1419	0.2151	0.2722	0.1680
.20	70	100.000	0.0962	0.6006	0.1016	0.1785	0.0789
.15	70	100.000	0.1007	0.6541	0.1134	0.1874	0.0877
.10	70	100.000	0.1070	0.7303	0.1290	0.1998	0.1001
.05	70	100.000	0.1162	0.8611	0.1560	0.2182	0.1212
.01	70	100.000	0.1354	1.1668	0.2186	0.2564	0.1698
.20	80	100.000	0.0910	0.6101	0.1044	0.1698	0.0787
.15	80	100.000	0.0953	0.6653	0.1158	0.1783	0.0878
.10	80	100.000	0.1009	0.7388	0.1320	0.1894	0.1001
.05	80	100.000	0.1098	0.8700	0.1582	0.2071	0.1209
.01	80	100.000	0.1275	1.1753	0.2240	0.2425	0.1692
.20	90	100.000	0.0870	0.6275	0.1079	0.1631	0.0799
.15	90	100.000	0.0911	0.6824	0.1198	0.1712	0.0889
.10	90	100.000	0.0963	0.7606	0.1360	0.1815	0.1012
.05	90	100.000	0.1050	0.8918	0.1650	0.1990	0.1228
.01	90	100.000	0.1222	1.1969	0.2304	0.2332	0.1731
.20	100	100.000	0.0833	0.6402	0.1103	0.1567	0.0799
.15	100	100.000	0.0872	0.6949	0.1227	0.1645	0.0889
.10	100	100.000	0.0924	0.7718	0.1391	0.1748	0.1010
.05	100	100.000	0.1004	0.9103	0.1681	0.1908	0.1232
.01	100	100.000	0.1166	1.2268	0.2363	0.2231	0.1742

Table E.70 Critical Values: Sample size N, phi = 1000, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	5	1000.000	0.3017	0.4913	0.0818	0.5067	0.0774
.15	5	1000.000	0.3161	0.5333	0.0899	0.5247	0.0849
.10	5	1000.000	0.3334	0.5901	0.1006	0.5482	0.0948
.05	5	1000.000	0.3575	0.6798	0.1176	0.5826	0.1104
.01	5	1000.000	0.4087	0.8819	0.1600	0.6478	0.1458
.20	10	1000.000	0.2213	0.5039	0.0819	0.3769	0.0766
.15	10	1000.000	0.2316	0.5511	0.0907	0.3932	0.0847
.10	10	1000.000	0.2452	0.6161	0.1029	0.4145	0.0957
.05	10	1000.000	0.2664	0.7247	0.1236	0.4486	0.1144
.01	10	1000.000	0.3078	0.9721	0.1709	0.5208	0.1564
.20	15	1000.000	0.1836	0.5073	0.0820	0.3178	0.0765
.15	15	1000.000	0.1923	0.5559	0.0910	0.3325	0.0847
.10	15	1000.000	0.2038	0.6237	0.1037	0.3522	0.0962
.05	15	1000.000	0.2218	0.7381	0.1254	0.3839	0.1156
.01	15	1000.000	0.2574	1.0044	0.1756	0.4504	0.1599
.20	20	1000.000	0.1604	0.5084	0.0819	0.2813	0.0762
.15	20	1000.000	0.1680	0.5569	0.0910	0.2947	0.0845
.10	20	1000.000	0.1779	0.6259	0.1037	0.3125	0.0960
.05	20	1000.000	0.1936	0.7427	0.1256	0.3411	0.1157
.01	20	1000.000	0.2250	1.0079	0.1765	0.4011	0.1603
.20	25	1000.000	0.1445	0.5098	0.0821	0.2561	0.0762
.15	25	1000.000	0.1514	0.5595	0.0912	0.2684	0.0845
.10	25	1000.000	0.1605	0.6290	0.1042	0.2853	0.0962
.05	25	1000.000	0.1745	0.7471	0.1262	0.3116	0.1159
.01	25	1000.000	0.2032	1.0137	0.1771	0.3671	0.1613
.20	30	1000.000	0.1326	0.5123	0.0824	0.2370	0.0763

Table E.71 Critical Values: Sample size N, phi = 1000, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.15	30	1000.000	0.1390	0.5621	0.0916	0.2489	0.0847
.10	30	1000.000	0.1474	0.6304	0.1045	0.2643	0.0962
.05	30	1000.000	0.1602	0.7487	0.1267	0.2889	0.1162
.01	30	1000.000	0.1863	1.0247	0.1786	0.3397	0.1624
.20	35	1000.000	0.1232	0.5126	0.0823	0.2217	0.0761
.15	35	1000.000	0.1291	0.5624	0.0916	0.2327	0.0846
.10	35	1000.000	0.1368	0.6326	0.1046	0.2473	0.0963
.05	35	1000.000	0.1491	0.7515	0.1270	0.2709	0.1163
.01	35	1000.000	0.1738	1.0259	0.1796	0.3193	0.1625
.20	40	1000.000	0.1155	0.5117	0.0821	0.2091	0.0759
.15	40	1000.000	0.1210	0.5618	0.0915	0.2195	0.0843
.10	40	1000.000	0.1283	0.6321	0.1046	0.2332	0.0961
.05	40	1000.000	0.1396	0.7518	0.1271	0.2552	0.1162
.01	40	1000.000	0.1630	1.0255	0.1793	0.3013	0.1627
.20	45	1000.000	0.1093	0.5144	0.0826	0.1990	0.0762
.15	45	1000.000	0.1146	0.5648	0.0919	0.2089	0.0845
.10	45	1000.000	0.1215	0.6349	0.1050	0.2222	0.0963
.05	45	1000.000	0.1323	0.7525	0.1276	0.2431	0.1165
.01	45	1000.000	0.1545	1.0329	0.1804	0.2868	0.1628
.20	50	1000.000	0.1040	0.5155	0.0829	0.1900	0.0762
.15	50	1000.000	0.1090	0.5655	0.0922	0.1996	0.0847
.10	50	1000.000	0.1155	0.6353	0.1053	0.2121	0.0965
.05	50	1000.000	0.1258	0.7536	0.1276	0.2322	0.1164
.01	50	1000.000	0.1465	1.0288	0.1802	0.2731	0.1625

Table E.72 Critical Values: Sample size N, phi = 1000, alpha levels = 0.20,..0.01

α	n	Φ	KS	AD	CV	V	W
.20	60	1000.000	0.0953	0.5168	0.0832	0.1753	0.0763
.15	60	1000.000	0.0999	0.5668	0.0924	0.1843	0.0847
.10	60	1000.000	0.1059	0.6365	0.1054	0.1960	0.0966
.05	60	1000.000	0.1153	0.7554	0.1281	0.2143	0.1166
.01	60	1000.000	0.1345	1.0323	0.1810	0.2524	0.1625
.20	70	1000.000	0.0886	0.5184	0.0831	0.1641	0.0763
.15	70	1000.000	0.0927	0.5676	0.0924	0.1722	0.0846
.10	70	1000.000	0.0982	0.6379	0.1059	0.1828	0.0965
.05	70	1000.000	0.1071	0.7598	0.1286	0.2002	0.1163
.01	70	1000.000	0.1253	1.0465	0.1827	0.2364	0.1634
.20	80	1000.000	0.0831	0.5159	0.0831	0.1545	0.0757
.15	80	1000.000	0.0870	0.5652	0.0925	0.1622	0.0841
.10	80	1000.000	0.0921	0.6363	0.1056	0.1722	0.0959
.05	80	1000.000	0.1002	0.7560	0.1282	0.1882	0.1161
.01	80	1000.000	0.1168	1.0365	0.1816	0.2210	0.1618
.20	90	1000.000	0.0787	0.5212	0.0841	0.1470	0.0767
.15	90	1000.000	0.0824	0.5729	0.0935	0.1543	0.0850
.10	90	1000.000	0.0873	0.6453	0.1072	0.1639	0.0967
.05	90	1000.000	0.0954	0.7647	0.1302	0.1797	0.1172
.01	90	1000.000	0.1117	1.0446	0.1842	0.2123	0.1644
.20	100	1000.000	0.0747	0.5207	0.0839	0.1399	0.0762
.15	100	1000.000	0.0783	0.5709	0.0932	0.1469	0.0843
.10	100	1000.000	0.0828	0.6419	0.1062	0.1559	0.0959
.05	100	1000.000	0.0904	0.7622	0.1294	0.1709	0.1165
.01	100	1000.000	0.1056	1.0577	0.1847	0.2013	0.1647

Table F.1 POWER TABLE: n=Sample Size alpha=0.20 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.3092	0.1776	0.2163	0.2323	0.1388	0.2017
5	AD	0.4587	0.2505	0.2610	0.3446	0.2113	0.1996
5	CV	0.3584	0.1827	0.2372	0.2580	0.1309	0.2015
5	V	0.3102	0.1925	0.2154	0.2411	0.2027	0.2002
5	W	0.2644	0.2127	0.1914	0.2310	0.2882	0.1985
10	KS	0.4191	0.1921	0.2428	0.2861	0.2557	0.1984
10	AD	0.5456	0.2289	0.2912	0.3701	0.2383	0.1965
10	CV	0.3958	0.1411	0.2608	0.2408	0.1428	0.1987
10	V	0.4202	0.1941	0.2429	0.2873	0.2630	0.1984
10	W	0.4375	0.2831	0.2256	0.3425	0.4421	0.1981
15	KS	0.5253	0.2233	0.2693	0.3482	0.3697	0.1976
15	AD	0.6134	0.2248	0.3128	0.3885	0.2670	0.2002
15	CV	0.4426	0.1297	0.2832	0.2467	0.1670	0.1985
15	V	0.5254	0.2236	0.2693	0.3483	0.3705	0.1976
15	W	0.5626	0.3436	0.2535	0.4325	0.5482	0.1955
20	KS	0.6161	0.2578	0.2839	0.4037	0.4669	0.1990
20	AD	0.6656	0.2232	0.3320	0.4066	0.2903	0.1974
20	CV	0.4903	0.1292	0.3033	0.2574	0.1899	0.1972
20	V	0.6162	0.2579	0.2839	0.4037	0.4672	0.1990
20	W	0.6574	0.4017	0.2732	0.5048	0.6299	0.1984
25	KS	0.6859	0.2935	0.3041	0.4573	0.5514	0.2027
25	AD	0.7110	0.2275	0.3527	0.4302	0.3143	0.2036
25	CV	0.5346	0.1342	0.3222	0.2738	0.2093	0.2030
25	V	0.6859	0.2935	0.3041	0.4573	0.5514	0.2027
25	W	0.7272	0.4480	0.2951	0.5594	0.6931	0.2039

Table F.2 POWER TABLE: n=Sample Size alpha=0.20 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.7458	0.3247	0.3238	0.5100	0.6256	0.2012
30	AD	0.7479	0.2293	0.3680	0.4532	0.3365	0.1991
30	CV	0.5737	0.1370	0.3364	0.2927	0.2244	0.1985
30	V	0.7458	0.3247	0.3238	0.5100	0.6256	0.2012
30	W	0.7820	0.4870	0.3120	0.6158	0.7481	0.1997
35	KS	0.7986	0.3554	0.3381	0.5571	0.6880	0.1997
35	AD	0.7842	0.2381	0.3848	0.4752	0.3559	0.1997
35	CV	0.6164	0.1442	0.3511	0.3101	0.2434	0.2013
35	V	0.7986	0.3554	0.3381	0.5571	0.6880	0.1997
35	W	0.8285	0.5234	0.3264	0.6582	0.7881	0.2000
40	KS	0.8349	0.3828	0.3544	0.5994	0.7401	0.2002
40	AD	0.8148	0.2450	0.3989	0.4959	0.3752	0.2003
40	CV	0.6476	0.1502	0.3652	0.3259	0.2590	0.2000
40	V	0.8349	0.3828	0.3544	0.5994	0.7401	0.2002
40	W	0.8623	0.5548	0.3416	0.6985	0.8220	0.2023
45	KS	0.8681	0.4090	0.3688	0.6341	0.7833	0.2019
45	AD	0.8406	0.2495	0.4129	0.5120	0.3924	0.2009
45	CV	0.6794	0.1560	0.3774	0.3351	0.2725	0.2005
45	V	0.8681	0.4090	0.3688	0.6341	0.7833	0.2019
45	W	0.8887	0.5824	0.3555	0.7319	0.8508	0.2013
50	KS	0.8929	0.4333	0.3777	0.6667	0.8224	0.1988
50	AD	0.8621	0.2576	0.4253	0.5306	0.4059	0.1961
50	CV	0.7052	0.1617	0.3865	0.3483	0.2841	0.1947
50	V	0.8929	0.4333	0.3777	0.6667	0.8224	0.1988
50	W	0.9104	0.6085	0.3636	0.7599	0.8725	0.1977

Table F.3 POWER TABLE: n=Sample Size alpha=0.15 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.2293	0.1205	0.1612	0.1627	0.0937	0.1513
5	AD	0.3699	0.1794	0.1977	0.2602	0.1549	0.1498
5	CV	0.2634	0.1218	0.1786	0.1791	0.0860	0.1502
5	V	0.2372	0.1365	0.1628	0.1756	0.1437	0.1503
5	W	0.2125	0.1632	0.1428	0.1817	0.2315	0.1486
10	KS	0.3414	0.1413	0.1856	0.2173	0.2081	0.1494
10	AD	0.4400	0.1602	0.2236	0.2724	0.1851	0.1482
10	CV	0.2917	0.0943	0.2028	0.1642	0.1069	0.1482
10	V	0.3424	0.1430	0.1858	0.2187	0.2135	0.1494
10	W	0.3853	0.2343	0.1708	0.2905	0.3876	0.1469
15	KS	0.4468	0.1704	0.2086	0.2752	0.3165	0.1485
15	AD	0.5037	0.1605	0.2452	0.2931	0.2186	0.1492
15	CV	0.3394	0.0905	0.2238	0.1751	0.1353	0.1488
15	V	0.4468	0.1706	0.2086	0.2754	0.3170	0.1485
15	W	0.5107	0.2976	0.1984	0.3812	0.4964	0.1462
20	KS	0.5430	0.2046	0.2248	0.3337	0.4133	0.1492
20	AD	0.5627	0.1654	0.2634	0.3134	0.2443	0.1460
20	CV	0.3870	0.0940	0.2413	0.1897	0.1564	0.1474
20	V	0.5430	0.2046	0.2248	0.3337	0.4134	0.1492
20	W	0.6081	0.3541	0.2155	0.4534	0.5817	0.1472
25	KS	0.6200	0.2381	0.2427	0.3869	0.4980	0.1510
25	AD	0.6147	0.1742	0.2844	0.3369	0.2666	0.1535
25	CV	0.4347	0.1020	0.2614	0.2088	0.1762	0.1539
25	V	0.6200	0.2381	0.2427	0.3869	0.4980	0.1510
25	W	0.6829	0.4020	0.2334	0.5103	0.6505	0.1524

Table F.4 POWER TABLE: n=Sample Size alpha=0.15 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.6853	0.2668	0.2586	0.4436	0.5744	0.1505
30	AD	0.6590	0.1791	0.2986	0.3641	0.2898	0.1513
30	CV	0.4785	0.1084	0.2749	0.2277	0.1926	0.1505
30	V	0.6854	0.2668	0.2586	0.4436	0.5744	0.1505
30	W	0.7427	0.4408	0.2493	0.5690	0.7081	0.1505
35	KS	0.7439	0.2990	0.2738	0.4890	0.6404	0.1495
35	AD	0.7032	0.1899	0.3132	0.3843	0.3091	0.1495
35	CV	0.5242	0.1164	0.2862	0.2453	0.2102	0.1497
35	V	0.7439	0.2990	0.2738	0.4890	0.6404	0.1495
35	W	0.7939	0.4803	0.2626	0.6142	0.7540	0.1499
40	KS	0.7886	0.3264	0.2870	0.5331	0.6944	0.1510
40	AD	0.7386	0.1981	0.3290	0.4066	0.3303	0.1501
40	CV	0.5586	0.1223	0.3025	0.2619	0.2266	0.1514
40	V	0.7886	0.3264	0.2870	0.5331	0.6944	0.1510
40	W	0.8331	0.5110	0.2751	0.6563	0.7903	0.1517
45	KS	0.8283	0.3505	0.3005	0.5694	0.7444	0.1528
45	AD	0.7691	0.2038	0.3419	0.4238	0.3483	0.1504
45	CV	0.5953	0.1273	0.3136	0.2723	0.2397	0.1504
45	V	0.8283	0.3505	0.3005	0.5694	0.7444	0.1528
45	W	0.8653	0.5394	0.2890	0.6909	0.8231	0.1516
50	KS	0.8574	0.3764	0.3095	0.6049	0.7857	0.1472
50	AD	0.7980	0.2127	0.3517	0.4414	0.3612	0.1464
50	CV	0.6227	0.1335	0.3206	0.2870	0.2512	0.1466
50	V	0.8574	0.3764	0.3095	0.6049	0.7857	0.1472
50	W	0.8883	0.5667	0.2979	0.7213	0.8484	0.1474

Table F.5 POWER TABLE: n=Sample Size alpha=0.10 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.1488	0.0706	0.1109	0.0995	0.0533	0.1010
5	AD	0.2539	0.1062	0.1337	0.1635	0.0929	0.1014
5	CVM	0.1584	0.0661	0.1229	0.1036	0.0447	0.1007
5	V	0.1578	0.0826	0.1133	0.1108	0.0916	0.1011
5	W	0.1586	0.1135	0.0941	0.1303	0.1719	0.0972
10	KS	0.2507	0.0910	0.1288	0.1449	0.1533	0.0998
10	AD	0.3100	0.0985	0.1563	0.1712	0.1321	0.0996
10	CV	0.1845	0.0539	0.1428	0.0970	0.0718	0.0994
10	V	0.2513	0.0921	0.1289	0.1457	0.1563	0.0998
10	W	0.3242	0.1837	0.1153	0.2329	0.3235	0.0971
15	KS	0.3561	0.1183	0.1476	0.2013	0.2539	0.0992
15	AD	0.3730	0.1039	0.1765	0.1935	0.1650	0.0986
15	CV	0.2337	0.0580	0.1650	0.1113	0.0999	0.0986
15	V	0.3563	0.1185	0.1476	0.2014	0.2541	0.0992
15	W	0.4475	0.2464	0.1392	0.3208	0.4351	0.0978
20	KS	0.4543	0.1516	0.1624	0.2574	0.3461	0.0995
20	AD	0.4319	0.1131	0.1937	0.2178	0.1928	0.0977
20	CV	0.2807	0.0658	0.1788	0.1289	0.1223	0.0975
20	V	0.4543	0.1517	0.1624	0.2574	0.3461	0.0995
20	W	0.5501	0.3006	0.1533	0.3946	0.5243	0.0979
25	KS	0.5355	0.1806	0.1769	0.3068	0.4304	0.1027
25	AD	0.4899	0.1251	0.2105	0.2425	0.2176	0.1028
25	CV	0.3274	0.0733	0.1937	0.1481	0.1412	0.1029
25	V	0.5355	0.1806	0.1769	0.3068	0.4305	0.1027
25	W	0.6313	0.3479	0.1698	0.4534	0.5966	0.1037

Table F.6 POWER TABLE: n=Sample Size alpha=0.10 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.6047	0.2073	0.1898	0.3613	0.5081	0.1005
30	AD	0.5378	0.1326	0.2224	0.2682	0.2371	0.0995
30	CV	0.3705	0.0810	0.2046	0.1665	0.1593	0.1000
30	V	0.6047	0.2073	0.1898	0.3613	0.5081	0.1005
30	W	0.6939	0.3894	0.1806	0.5111	0.6560	0.1005
35	KS	0.6716	0.2373	0.2018	0.4062	0.5765	0.0994
35	AD	0.5913	0.1447	0.2374	0.2911	0.2583	0.1003
35	CV	0.4155	0.0907	0.2169	0.1836	0.1732	0.1005
35	V	0.6716	0.2373	0.2018	0.4062	0.5765	0.0994
35	W	0.7504	0.4267	0.1936	0.5599	0.7070	0.0998
40	KS	0.7246	0.2639	0.2158	0.4524	0.6362	0.1018
40	AD	0.6309	0.1521	0.2508	0.3132	0.2781	0.1013
40	CV	0.4569	0.0962	0.2289	0.2014	0.1914	0.1018
40	V	0.7246	0.2639	0.2158	0.4524	0.6362	0.1018
40	W	0.7939	0.4584	0.2041	0.6044	0.7472	0.1026
45	KS	0.7694	0.2852	0.2253	0.4898	0.6884	0.1016
45	AD	0.6700	0.1604	0.2640	0.3274	0.2971	0.1018
45	CV	0.4914	0.1001	0.2415	0.2127	0.2018	0.1008
45	V	0.7694	0.2852	0.2253	0.4898	0.6884	0.1016
45	W	0.8308	0.4869	0.2153	0.6387	0.7831	0.1014
50	KS	0.8054	0.3096	0.2361	0.5242	0.7343	0.0971
50	AD	0.7009	0.1681	0.2721	0.3447	0.3102	0.0970
50	CV	0.5236	0.1060	0.2478	0.2251	0.2152	0.0977
50	V	0.8054	0.3096	0.2361	0.5242	0.7343	0.0971
50	W	0.8598	0.5144	0.2254	0.6709	0.8137	0.0985

Table F.7 POWER TABLE: n=Sample Size alpha=0.05 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.0597	0.0256	0.0579	0.0390	0.0163	0.0505
5	AD	0.1082	0.0376	0.0719	0.0642	0.0332	0.0510
5	CV	0.0540	0.0215	0.0649	0.0347	0.0089	0.0506
5	V	0.0658	0.0307	0.0583	0.0442	0.0322	0.0505
5	W	0.0997	0.0641	0.0472	0.0774	0.1060	0.0479
10	KS	0.1471	0.0431	0.0700	0.0742	0.0875	0.0490
10	AD	0.1570	0.0445	0.0867	0.0783	0.0723	0.0491
10	CV	0.0859	0.0222	0.0804	0.0417	0.0380	0.0484
10	V	0.1476	0.0437	0.0700	0.0748	0.0890	0.0490
10	W	0.2494	0.1266	0.0603	0.1660	0.2419	0.0492
15	KS	0.2411	0.0659	0.0834	0.1214	0.1725	0.0496
15	AD	0.2159	0.0552	0.1041	0.1015	0.1054	0.0501
15	CV	0.1313	0.0302	0.0961	0.0578	0.0615	0.0495
15	V	0.2411	0.0660	0.0834	0.1215	0.1727	0.0496
15	W	0.3700	0.1847	0.0752	0.2490	0.3505	0.0488
20	KS	0.3347	0.0921	0.0938	0.1695	0.2584	0.0485
20	AD	0.2715	0.0676	0.1147	0.1268	0.1314	0.0492
20	CV	0.1710	0.0392	0.1075	0.0749	0.0822	0.0496
20	V	0.3347	0.0922	0.0938	0.1696	0.2584	0.0485
20	W	0.4717	0.2349	0.0869	0.3187	0.4386	0.0503
25	KS	0.4129	0.1170	0.1050	0.2118	0.3322	0.0511
25	AD	0.3239	0.0776	0.1281	0.1496	0.1535	0.0517
25	CV	0.2134	0.0462	0.1185	0.0913	0.0989	0.0519
25	V	0.4129	0.1170	0.1050	0.2118	0.3322	0.0511
25	W	0.5543	0.2807	0.0966	0.3745	0.5162	0.0525

Table F.8 POWER TABLE: n=Sample Size alpha=0.05 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.4885	0.1394	0.1122	0.2597	0.4056	0.0503
30	AD	0.3739	0.0871	0.1382	0.1710	0.1739	0.0499
30	CV	0.2517	0.0531	0.1270	0.1104	0.1159	0.0495
30	V	0.4885	0.1394	0.1122	0.2597	0.4056	0.0503
30	W	0.6229	0.3170	0.1051	0.4352	0.5782	0.0508
35	KS	0.5593	0.1637	0.1206	0.3017	0.4801	0.0502
35	AD	0.4273	0.0987	0.1488	0.1931	0.1940	0.0504
35	CV	0.2921	0.0618	0.1362	0.1231	0.1300	0.0506
35	V	0.5593	0.1637	0.1206	0.3017	0.4801	0.0502
35	W	0.6845	0.3559	0.1140	0.4845	0.6346	0.0491
40	KS	0.6201	0.1871	0.1311	0.3450	0.5415	0.0516
40	AD	0.4715	0.1064	0.1599	0.2140	0.2146	0.0520
40	CV	0.3304	0.0660	0.1459	0.1388	0.1456	0.0510
40	V	0.6201	0.1871	0.1311	0.3450	0.5415	0.0516
40	W	0.7338	0.3874	0.1238	0.5270	0.6784	0.0516
45	KS	0.6698	0.2074	0.1380	0.3800	0.5985	0.0513
45	AD	0.5125	0.1121	0.1689	0.2277	0.2291	0.0515
45	CV	0.3642	0.0712	0.1541	0.1494	0.1542	0.0527
45	V	0.6698	0.2074	0.1380	0.3800	0.5985	0.0513
45	W	0.7755	0.4177	0.1287	0.5640	0.7206	0.0526
50	KS	0.7145	0.2294	0.1469	0.4119	0.6491	0.0486
50	AD	0.5470	0.1193	0.1779	0.2418	0.2428	0.0497
50	CV	0.3943	0.0750	0.1626	0.1611	0.1683	0.0494
50	V	0.7145	0.2294	0.1469	0.4119	0.6491	0.0486
50	W	0.8086	0.4427	0.1376	0.5973	0.7558	0.0488

Table F.9 POWER TABLE: n=Sample Size alpha=0.01 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.0047	0.0031	0.0126	0.0046	0.0003	0.0101
5	AD	0.0085	0.0033	0.0177	0.0057	0.0003	0.0102
5	CV	0.0062	0.0032	0.0154	0.0048	0.0002	0.0101
5	V	0.0047	0.0031	0.0126	0.0046	0.0003	0.0101
5	W	0.0292	0.0142	0.0090	0.0179	0.0281	0.0098
10	KS	0.0332	0.0048	0.0169	0.0114	0.0153	0.0101
10	AD	0.0341	0.0072	0.0232	0.0133	0.0175	0.0100
10	CV	0.0157	0.0025	0.0214	0.0057	0.0069	0.0098
10	V	0.0333	0.0049	0.0169	0.0114	0.0156	0.0101
10	W	0.1460	0.0612	0.0133	0.0867	0.1322	0.0099
15	KS	0.0986	0.0180	0.0235	0.0372	0.0633	0.0099
15	AD	0.0762	0.0168	0.0313	0.0307	0.0390	0.0107
15	CV	0.0447	0.0087	0.0293	0.0166	0.0211	0.0108
15	V	0.0987	0.0181	0.0235	0.0373	0.0633	0.0099
15	W	0.2504	0.1044	0.0194	0.1504	0.2244	0.0103
20	KS	0.1663	0.0338	0.0283	0.0680	0.1231	0.0093
20	AD	0.1123	0.0253	0.0364	0.0487	0.0572	0.0099
20	CV	0.0733	0.0141	0.0352	0.0298	0.0342	0.0099
20	V	0.1663	0.0338	0.0283	0.0680	0.1231	0.0093
20	W	0.3453	0.1462	0.0244	0.2105	0.3020	0.0100
25	KS	0.2307	0.0472	0.0318	0.0967	0.1820	0.0103
25	AD	0.1504	0.0325	0.0429	0.0629	0.0756	0.0100
25	CV	0.1009	0.0186	0.0404	0.0392	0.0475	0.0104
25	V	0.2307	0.0472	0.0318	0.0967	0.1820	0.0103
25	W	0.4228	0.1824	0.0282	0.2613	0.3697	0.0103

Table F.10 POWER TABLE: n=Sample Size alpha=0.01 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.2956	0.0625	0.0355	0.1296	0.2403	0.0103
30	AD	0.1857	0.0403	0.0476	0.0819	0.0922	0.0101
30	CV	0.1281	0.0240	0.0448	0.0529	0.0604	0.0098
30	V	0.2956	0.0625	0.0355	0.1296	0.2403	0.0103
30	W	0.4930	0.2125	0.0315	0.3130	0.4363	0.0099
35	KS	0.3614	0.0789	0.0390	0.1589	0.3034	0.0097
35	AD	0.2246	0.0491	0.0545	0.0939	0.1078	0.0106
35	CV	0.1596	0.0311	0.0512	0.0613	0.0716	0.0103
35	V	0.3614	0.0789	0.0390	0.1589	0.3034	0.0097
35	W	0.5615	0.2471	0.0366	0.3596	0.4947	0.0099
40	KS	0.4202	0.0933	0.0436	0.1941	0.3646	0.0108
40	AD	0.2616	0.0539	0.0593	0.1103	0.1240	0.0103
40	CV	0.1865	0.0353	0.0547	0.0732	0.0821	0.0106
40	V	0.4202	0.0933	0.0436	0.1941	0.3646	0.0108
40	W	0.6159	0.2776	0.0393	0.4021	0.5469	0.0106
45	KS	0.4752	0.1066	0.0459	0.2173	0.4202	0.0110
45	AD	0.2933	0.0595	0.0638	0.1204	0.1341	0.0103
45	CV	0.2116	0.0385	0.0586	0.0814	0.0917	0.0105
45	V	0.4752	0.1066	0.0459	0.2173	0.4202	0.0110
45	W	0.6630	0.3029	0.0417	0.4362	0.5934	0.0107
50	KS	0.5227	0.1202	0.0488	0.2442	0.4703	0.0099
50	AD	0.3264	0.0642	0.0691	0.1340	0.1507	0.0094
50	CV	0.2387	0.0418	0.0636	0.0905	0.1014	0.0089
50	V	0.5227	0.1202	0.0488	0.2442	0.4703	0.0099
50	W	0.7045	0.3300	0.0443	0.4709	0.6363	0.0091

Table F.11 POWER TABLE: n=Sample Size alpha=0.20 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.5610	0.3864	0.4072	0.4691	0.3166	0.2006
5	AD	0.7806	0.6097	0.6113	0.7043	0.5140	0.1975
5	CV	0.6714	0.4766	0.5038	0.5794	0.3689	0.1967
5	V	0.4469	0.3187	0.3301	0.3731	0.3411	0.2001
5	W	0.2763	0.2243	0.2029	0.2420	0.3017	0.1998
10	KS	0.7979	0.5647	0.6035	0.6856	0.5290	0.1983
10	AD	0.9644	0.8527	0.8656	0.9253	0.7315	0.1983
10	CV	0.9106	0.7062	0.7595	0.8311	0.5249	0.1970
10	V	0.7872	0.5540	0.5893	0.6726	0.5403	0.1981
10	W	0.5228	0.3649	0.3178	0.4280	0.5262	0.1972
15	KS	0.9093	0.6912	0.7296	0.8152	0.6921	0.1967
15	AD	0.9949	0.9474	0.9599	0.9839	0.8524	0.1956
15	CV	0.9763	0.8401	0.8868	0.9323	0.6383	0.1957
15	V	0.9080	0.6889	0.7274	0.8133	0.6954	0.1969
15	W	0.6989	0.4818	0.4255	0.5769	0.6735	0.1957
20	KS	0.9613	0.7839	0.8129	0.8937	0.8029	0.1971
20	AD	0.9993	0.9824	0.9881	0.9959	0.9164	0.1975
20	CV	0.9943	0.9138	0.9475	0.9747	0.7205	0.1989
20	V	0.9611	0.7837	0.8125	0.8935	0.8036	0.1973
20	W	0.8147	0.5856	0.5146	0.6882	0.7769	0.2002
25	KS	0.9835	0.8462	0.8732	0.9396	0.8794	0.2015
25	AD	0.9999	0.9943	0.9969	0.9993	0.9551	0.2014
25	CV	0.9984	0.9529	0.9769	0.9901	0.7863	0.2018
25	V	0.9835	0.8462	0.8732	0.9395	0.8794	0.2015
25	W	0.8875	0.6611	0.5996	0.7719	0.8458	0.2003

Table F.12 POWER TABLE: n=Sample Size alpha=0.20 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.9930	0.8944	0.9133	0.9665	0.9279	0.2025
30	AD	1.0000	0.9982	0.9990	0.9998	0.9743	0.2013
30	CV	0.9996	0.9747	0.9891	0.9964	0.8351	0.2010
30	V	0.9930	0.8944	0.9133	0.9665	0.9279	0.2024
30	W	0.9340	0.7286	0.6677	0.8347	0.8957	0.2012
35	KS	0.9973	0.9267	0.9451	0.9814	0.9564	0.1999
35	AD	1.0000	0.9993	0.9997	0.9999	0.9849	0.2001
35	CV	0.9999	0.9869	0.9952	0.9987	0.8711	0.1994
35	V	0.9973	0.9267	0.9451	0.9814	0.9564	0.1999
35	W	0.9618	0.7799	0.7292	0.8837	0.9255	0.1970
40	KS	0.9987	0.9516	0.9626	0.9898	0.9733	0.2020
40	AD	1.0000	0.9999	0.9999	1.0000	0.9915	0.2020
40	CV	1.0000	0.9942	0.9978	0.9996	0.8993	0.2023
40	V	0.9987	0.9516	0.9626	0.9898	0.9733	0.2020
40	W	0.9775	0.8234	0.7783	0.9177	0.9492	0.2031
45	KS	0.9996	0.9673	0.9743	0.9947	0.9850	0.2034
45	AD	1.0000	1.0000	1.0000	1.0000	0.9952	0.2031
45	CV	1.0000	0.9968	0.9991	0.9998	0.9223	0.2019
45	V	0.9996	0.9673	0.9743	0.9947	0.9850	0.2034
45	W	0.9878	0.8563	0.8200	0.9414	0.9664	0.2025
50	KS	0.9999	0.9786	0.9839	0.9977	0.9914	0.1993
50	AD	1.0000	1.0000	1.0000	1.0000	0.9974	0.1968
50	CV	1.0000	0.9983	0.9998	1.0000	0.9391	0.1982
50	V	0.9999	0.9786	0.9839	0.9977	0.9914	0.1993
50	W	0.9926	0.8856	0.8512	0.9621	0.9763	0.1991

Table F.13 POWER TABLE: n=Sample Size alpha=0.15 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.4616	0.2988	0.3270	0.3741	0.2427	0.1488
5	AD	0.7180	0.5257	0.5260	0.6289	0.4401	0.1478
5	CV	0.5929	0.3870	0.4218	0.4890	0.2929	0.1478
5	V	0.3851	0.2603	0.2773	0.3122	0.2768	0.1486
5	W	0.2239	0.1743	0.1541	0.1922	0.2452	0.1474
10	KS	0.7262	0.4714	0.5155	0.5987	0.4624	0.1470
10	AD	0.9449	0.7919	0.8098	0.8896	0.6677	0.1483
10	CV	0.8658	0.6130	0.6834	0.7591	0.4479	0.1485
10	V	0.7189	0.4659	0.5083	0.5910	0.4750	0.1473
10	W	0.4680	0.3116	0.2564	0.3705	0.4719	0.1468
15	KS	0.8651	0.6034	0.6479	0.7466	0.6373	0.1466
15	AD	0.9912	0.9160	0.9350	0.9707	0.8054	0.1455
15	CV	0.9585	0.7655	0.8309	0.8905	0.5669	0.1454
15	V	0.8643	0.6023	0.6469	0.7457	0.6398	0.1467
15	W	0.6478	0.4276	0.3554	0.5206	0.6272	0.1476
20	KS	0.9358	0.7089	0.7439	0.8438	0.7634	0.1475
20	AD	0.9986	0.9689	0.9782	0.9921	0.8843	0.1474
20	CV	0.9883	0.8607	0.9135	0.9542	0.6555	0.1481
20	V	0.9358	0.7089	0.7438	0.8438	0.7642	0.1475
20	W	0.7689	0.5288	0.4407	0.6345	0.7368	0.1508
25	KS	0.9704	0.7838	0.8157	0.9046	0.8480	0.1516
25	AD	0.9998	0.9892	0.9930	0.9985	0.9346	0.1514
25	CV	0.9970	0.9182	0.9572	0.9806	0.7282	0.1524
25	V	0.9704	0.7838	0.8156	0.9045	0.8481	0.1516
25	W	0.8547	0.6080	0.5235	0.7227	0.8144	0.1518

Table F.14 POWER TABLE: n=Sample Size alpha=0.15 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.9871	0.8445	0.8663	0.9429	0.9057	0.1523
30	AD	1.0000	0.9960	0.9980	0.9996	0.9610	0.1501
30	CV	0.9990	0.9544	0.9786	0.9920	0.7855	0.1506
30	V	0.9871	0.8445	0.8663	0.9429	0.9058	0.1523
30	W	0.9091	0.6762	0.5935	0.7926	0.8703	0.1505
35	KS	0.9944	0.8899	0.9085	0.9680	0.9422	0.1488
35	AD	1.0000	0.9987	0.9992	0.9999	0.9769	0.1499
35	CV	0.9998	0.9739	0.9906	0.9968	0.8306	0.1490
35	V	0.9944	0.8899	0.9085	0.9680	0.9422	0.1488
35	W	0.9438	0.7334	0.6579	0.8472	0.9060	0.1468
40	KS	0.9976	0.9214	0.9367	0.9816	0.9653	0.1522
40	AD	1.0000	0.9996	0.9998	1.0000	0.9858	0.1512
40	CV	1.0000	0.9860	0.9951	0.9987	0.8649	0.1515
40	V	0.9976	0.9214	0.9367	0.9816	0.9653	0.1522
40	W	0.9656	0.7801	0.7109	0.8872	0.9338	0.1527
45	KS	0.9990	0.9446	0.9548	0.9892	0.9790	0.1532
45	AD	1.0000	0.9998	1.0000	1.0000	0.9920	0.1534
45	CV	1.0000	0.9924	0.9978	0.9995	0.8936	0.1540
45	V	0.9990	0.9446	0.9548	0.9892	0.9790	0.1532
45	W	0.9797	0.8166	0.7581	0.9179	0.9548	0.1523
50	KS	0.9997	0.9611	0.9695	0.9951	0.9878	0.1502
50	AD	1.0000	1.0000	1.0000	1.0000	0.9951	0.1479
50	CV	1.0000	0.9958	0.9991	0.9999	0.9157	0.1479
50	V	0.9997	0.9611	0.9695	0.9951	0.9878	0.1502
50	W	0.9880	0.8511	0.7964	0.9430	0.9678	0.1490

Table F.15 POWER TABLE: n=Sample Size alpha=0.10 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.3562	0.2140	0.2515	0.2750	0.1689	0.0999
5	AD	0.6294	0.4158	0.4188	0.5245	0.3466	0.0971
5	CV	0.4886	0.2833	0.3292	0.3798	0.2093	0.0988
5	V	0.3157	0.1976	0.2195	0.2467	0.2075	0.0989
5	W	0.1716	0.1248	0.1060	0.1421	0.1854	0.0975
10	KS	0.6252	0.3587	0.4117	0.4829	0.3853	0.0990
10	AD	0.9065	0.6925	0.7221	0.8224	0.5787	0.0994
10	CV	0.7852	0.4809	0.5743	0.6468	0.3561	0.1000
10	V	0.6212	0.3576	0.4074	0.4791	0.3962	0.0985
10	W	0.4047	0.2520	0.1909	0.3091	0.4075	0.0974
15	KS	0.7945	0.4937	0.5412	0.6460	0.5689	0.0966
15	AD	0.9815	0.8585	0.8844	0.9425	0.7346	0.0974
15	CV	0.9213	0.6480	0.7458	0.8159	0.4758	0.0970
15	V	0.7941	0.4938	0.5407	0.6456	0.5711	0.0967
15	W	0.5815	0.3625	0.2764	0.4528	0.5668	0.0974
20	KS	0.8911	0.6070	0.6457	0.7649	0.7052	0.0993
20	AD	0.9966	0.9387	0.9545	0.9830	0.8333	0.0995
20	CV	0.9736	0.7669	0.8522	0.9084	0.5712	0.0996
20	V	0.8910	0.6071	0.6457	0.7649	0.7057	0.0993
20	W	0.7139	0.4623	0.3522	0.5685	0.6846	0.1014
25	KS	0.9457	0.6939	0.7289	0.8434	0.8051	0.1004
25	AD	0.9994	0.9741	0.9841	0.9954	0.8971	0.1022
25	CV	0.9917	0.8493	0.9189	0.9572	0.6534	0.1023
25	V	0.9457	0.6939	0.7289	0.8434	0.8051	0.1004
25	W	0.8072	0.5412	0.4290	0.6579	0.7706	0.1024

Table F.16 POWER TABLE: n=Sample Size alpha=0.10 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.9731	0.7662	0.7915	0.8989	0.8742	0.1018
30	AD	1.0000	0.9901	0.9945	0.9986	0.9371	0.0996
30	CV	0.9973	0.9081	0.9545	0.9809	0.7181	0.0998
30	V	0.9731	0.7662	0.7915	0.8989	0.8743	0.1018
30	W	0.8716	0.6126	0.4974	0.7348	0.8351	0.1009
35	KS	0.9873	0.8250	0.8475	0.9384	0.9206	0.0988
35	AD	1.0000	0.9958	0.9982	0.9997	0.9605	0.0986
35	CV	0.9992	0.9422	0.9784	0.9916	0.7722	0.0991
35	V	0.9873	0.8250	0.8475	0.9384	0.9207	0.0988
35	W	0.9166	0.6704	0.5608	0.7982	0.8776	0.0977
40	KS	0.9942	0.8694	0.8861	0.9632	0.9494	0.1015
40	AD	1.0000	0.9986	0.9995	1.0000	0.9751	0.1023
40	CV	0.9997	0.9665	0.9874	0.9966	0.8128	0.1018
40	V	0.9942	0.8694	0.8861	0.9632	0.9494	0.1015
40	W	0.9456	0.7223	0.6175	0.8445	0.9120	0.1021
45	KS	0.9975	0.9027	0.9158	0.9769	0.9696	0.1018
45	AD	1.0000	0.9994	0.9999	1.0000	0.9857	0.1029
45	CV	1.0000	0.9805	0.9939	0.9985	0.8503	0.1019
45	V	0.9975	0.9027	0.9158	0.9769	0.9696	0.1018
45	W	0.9666	0.7631	0.6683	0.8799	0.9364	0.1014
50	KS	0.9988	0.9293	0.9391	0.9872	0.9808	0.1010
50	AD	1.0000	0.9998	1.0000	1.0000	0.9908	0.0985
50	CV	1.0000	0.9888	0.9971	0.9994	0.8794	0.0984
50	V	0.9988	0.9293	0.9391	0.9872	0.9808	0.1010
50	W	0.9791	0.8019	0.7119	0.9131	0.9539	0.1006

Table F.17 POWER TABLE: n=Sample Size alpha=0.05 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.2321	0.1221	0.1628	0.1649	0.0950	0.0503
5	AD	0.4788	0.2672	0.2773	0.3639	0.2245	0.0482
5	CV	0.3276	0.1624	0.2182	0.2330	0.1160	0.0491
5	V	0.2206	0.1241	0.1509	0.1618	0.1322	0.0487
5	W	0.1151	0.0768	0.0584	0.0916	0.1231	0.0482
10	KS	0.4697	0.2280	0.2803	0.3298	0.2856	0.0501
10	AD	0.8131	0.5154	0.5567	0.6790	0.4398	0.0491
10	CV	0.6265	0.3009	0.4180	0.4558	0.2420	0.0496
10	V	0.4690	0.2293	0.2794	0.3298	0.2934	0.0498
10	W	0.3235	0.1831	0.1145	0.2321	0.3225	0.0501
15	KS	0.6629	0.3385	0.3904	0.4879	0.4660	0.0485
15	AD	0.9477	0.7206	0.7632	0.8637	0.6087	0.0489
15	CV	0.8222	0.4503	0.5956	0.6524	0.3541	0.0489
15	V	0.6629	0.3386	0.3902	0.4879	0.4675	0.0486
15	W	0.4928	0.2826	0.1812	0.3637	0.4794	0.0485
20	KS	0.7995	0.4540	0.4895	0.6217	0.6124	0.0500
20	AD	0.9878	0.8512	0.8852	0.9500	0.7308	0.0499
20	CV	0.9259	0.5887	0.7297	0.7953	0.4537	0.0511
20	V	0.7996	0.4540	0.4895	0.6217	0.6127	0.0500
20	W	0.6294	0.3753	0.2405	0.4764	0.6043	0.0501
25	KS	0.8842	0.5474	0.5813	0.7262	0.7281	0.0506
25	AD	0.9973	0.9243	0.9503	0.9827	0.8196	0.0515
25	CV	0.9715	0.6978	0.8280	0.8862	0.5376	0.0514
25	V	0.8842	0.5474	0.5813	0.7262	0.7282	0.0506
25	W	0.7309	0.4525	0.3016	0.5643	0.6972	0.0506

Table F.18 POWER TABLE: n=Sample Size alpha=0.05 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.9356	0.6326	0.6548	0.8066	0.8148	0.0512
30	AD	0.9994	0.9647	0.9790	0.9942	0.8805	0.0495
30	CV	0.9902	0.7893	0.8921	0.9403	0.6142	0.0499
30	V	0.9356	0.6326	0.6548	0.8066	0.8148	0.0512
30	W	0.8095	0.5234	0.3638	0.6495	0.7761	0.0508
35	KS	0.9651	0.7028	0.7249	0.8674	0.8756	0.0502
35	AD	0.9999	0.9836	0.9921	0.9982	0.9211	0.0495
35	CV	0.9965	0.8514	0.9369	0.9692	0.6751	0.0487
35	V	0.9651	0.7028	0.7249	0.8674	0.8756	0.0502
35	W	0.8675	0.5823	0.4180	0.7158	0.8273	0.0483
40	KS	0.9818	0.7644	0.7804	0.9118	0.9175	0.0510
40	AD	1.0000	0.9935	0.9964	0.9997	0.9478	0.0515
40	CV	0.9988	0.9034	0.9633	0.9861	0.7257	0.0515
40	V	0.9818	0.7644	0.7804	0.9118	0.9175	0.0510
40	W	0.9084	0.6361	0.4746	0.7732	0.8713	0.0518
45	KS	0.9908	0.8123	0.8274	0.9405	0.9479	0.0514
45	AD	1.0000	0.9971	0.9988	0.9998	0.9667	0.0509
45	CV	0.9997	0.9344	0.9784	0.9931	0.7709	0.0512
45	V	0.9908	0.8123	0.8274	0.9405	0.9479	0.0514
45	W	0.9360	0.6810	0.5235	0.8171	0.9036	0.0508
50	KS	0.9950	0.8541	0.8639	0.9630	0.9661	0.0496
50	AD	1.0000	0.9988	0.9997	1.0000	0.9785	0.0495
50	CV	0.9999	0.9590	0.9878	0.9969	0.8105	0.0492
50	V	0.9950	0.8541	0.8639	0.9630	0.9661	0.0496
50	W	0.9585	0.7246	0.5703	0.8576	0.9277	0.0504

Table F.19 POWER TABLE: n=Sample Size alpha=0.01 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
5	KS	0.0498	0.0214	0.0521	0.0322	0.0123	0.0093
5	AD	0.1900	0.0727	0.1063	0.1178	0.0653	0.0100
5	CV	0.0791	0.0318	0.0799	0.0506	0.0170	0.0099
5	V	0.0531	0.0246	0.0515	0.0346	0.0244	0.0094
5	W	0.0420	0.0225	0.0147	0.0284	0.0423	0.0093
10	KS	0.2244	0.0787	0.1139	0.1267	0.1378	0.0101
10	AD	0.5034	0.1985	0.2626	0.3279	0.2148	0.0101
10	CV	0.2871	0.0925	0.2005	0.1611	0.1056	0.0101
10	V	0.2252	0.0795	0.1139	0.1275	0.1405	0.0101
10	W	0.2083	0.0996	0.0374	0.1320	0.1992	0.0104
15	KS	0.4075	0.1465	0.1801	0.2419	0.2881	0.0096
15	AD	0.7630	0.3599	0.4465	0.5622	0.3606	0.0102
15	CV	0.5149	0.1642	0.3276	0.3043	0.1925	0.0100
15	V	0.4076	0.1466	0.1800	0.2419	0.2884	0.0096
15	W	0.3540	0.1725	0.0651	0.2354	0.3336	0.0100
20	KS	0.5699	0.2232	0.2446	0.3579	0.4321	0.0101
20	AD	0.9061	0.5318	0.6215	0.7533	0.4924	0.0100
20	CV	0.7094	0.2560	0.4572	0.4600	0.2746	0.0098
20	V	0.5699	0.2232	0.2446	0.3579	0.4324	0.0101
20	W	0.4828	0.2443	0.0963	0.3293	0.4511	0.0102
25	KS	0.6927	0.3002	0.3116	0.4650	0.5574	0.0102
25	AD	0.9687	0.6744	0.7608	0.8734	0.6066	0.0104
25	CV	0.8376	0.3501	0.5762	0.6060	0.3479	0.0105
25	V	0.6927	0.3002	0.3116	0.4650	0.5574	0.0102
25	W	0.5920	0.3120	0.1299	0.4130	0.5550	0.0103

Table F.20 POWER TABLE: n=Sample Size alpha=0.01 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
30	KS	0.7947	0.3776	0.3847	0.5719	0.6678	0.0111
30	AD	0.9912	0.7968	0.8625	0.9441	0.7051	0.0104
30	CV	0.9205	0.4512	0.6821	0.7339	0.4248	0.0106
30	V	0.7947	0.3776	0.3847	0.5719	0.6678	0.0111
30	W	0.6807	0.3743	0.1634	0.4955	0.6415	0.0106
35	KS	0.8656	0.4497	0.4481	0.6618	0.7538	0.0091
35	AD	0.9973	0.8739	0.9255	0.9755	0.7789	0.0102
35	CV	0.9622	0.5371	0.7668	0.8203	0.4882	0.0099
35	V	0.8656	0.4497	0.4481	0.6618	0.7538	0.0091
35	W	0.7528	0.4294	0.1974	0.5630	0.7098	0.0099
40	KS	0.9152	0.5231	0.5169	0.7405	0.8233	0.0100
40	AD	0.9993	0.9286	0.9615	0.9909	0.8371	0.0101
40	CV	0.9830	0.6311	0.8364	0.8910	0.5495	0.0101
40	V	0.9152	0.5231	0.5169	0.7405	0.8233	0.0100
40	W	0.8127	0.4825	0.2356	0.6285	0.7672	0.0105
45	KS	0.9469	0.5841	0.5742	0.7966	0.8731	0.0105
45	AD	0.9999	0.9606	0.9807	0.9966	0.8831	0.0105
45	CV	0.9930	0.7096	0.8874	0.9305	0.6039	0.0103
45	V	0.9469	0.5841	0.5742	0.7966	0.8731	0.0105
45	W	0.8589	0.5294	0.2737	0.6810	0.8153	0.0101
50	KS	0.9680	0.6472	0.6315	0.8494	0.9117	0.0101
50	AD	1.0000	0.9793	0.9911	0.9988	0.9159	0.0106
50	CV	0.9971	0.7761	0.9242	0.9617	0.6557	0.0103
50	V	0.9680	0.6472	0.6315	0.8494	0.9117	0.0101
50	W	0.8946	0.5765	0.3137	0.7311	0.8546	0.0099

Table F.21 POWER TABLE: n=Sample Size alpha=0.20 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.9312	0.4833	0.4063	0.7274	0.8792	0.1993
60	AD	0.8964	0.2699	0.4516	0.5661	0.4369	0.1959
60	CV	0.7559	0.1710	0.4126	0.3799	0.3080	0.1953
60	V	0.9312	0.4833	0.4063	0.7274	0.8792	0.1993
60	W	0.9411	0.6549	0.3896	0.8085	0.9092	0.1964
70	KS	0.9541	0.5236	0.4309	0.7760	0.9186	0.2015
70	AD	0.9238	0.2859	0.4781	0.6008	0.4677	0.2018
70	CV	0.7979	0.1817	0.4369	0.4104	0.3317	0.2029
70	V	0.9541	0.5236	0.4309	0.7760	0.9186	0.2015
70	W	0.9625	0.7008	0.4156	0.8476	0.9366	0.2028
80	KS	0.9729	0.5676	0.4577	0.8202	0.9467	0.2063
80	AD	0.9464	0.2994	0.5049	0.6365	0.4923	0.2091
80	CV	0.8357	0.1921	0.4614	0.4379	0.3524	0.2079
80	V	0.9729	0.5676	0.4577	0.8202	0.9467	0.2063
80	W	0.9771	0.7371	0.4393	0.8790	0.9538	0.2059
90	KS	0.9819	0.6026	0.4723	0.8528	0.9640	0.1968
90	AD	0.9592	0.3084	0.5177	0.6634	0.5121	0.1980
90	CV	0.8620	0.1997	0.4726	0.4605	0.3668	0.1983
90	V	0.9819	0.6026	0.4723	0.8528	0.9640	0.1968
90	W	0.9842	0.7633	0.4537	0.9064	0.9667	0.1995
100	KS	0.9893	0.6372	0.4919	0.8799	0.9771	0.2027
100	AD	0.9705	0.3214	0.5408	0.6899	0.5329	0.2029
100	CV	0.8879	0.2070	0.4928	0.4879	0.3831	0.2031
100	V	0.9893	0.6372	0.4919	0.8799	0.9771	0.2027
100	W	0.9904	0.7902	0.4710	0.9239	0.9771	0.2030

Table F.22 POWER TABLE: n=Sample Size alpha=0.15 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.9047	0.4235	0.3353	0.6677	0.8504	0.1477
60	AD	0.8436	0.2255	0.3802	0.4806	0.3928	0.1476
60	CV	0.6801	0.1440	0.3452	0.3156	0.2762	0.1461
60	V	0.9047	0.4235	0.3353	0.6677	0.8504	0.1477
60	W	0.9252	0.6156	0.3189	0.7739	0.8891	0.1457
70	KS	0.9361	0.4657	0.3585	0.7236	0.8960	0.1510
70	AD	0.8798	0.2389	0.4035	0.5158	0.4226	0.1496
70	CV	0.7318	0.1548	0.3691	0.3475	0.2983	0.1500
70	V	0.9361	0.4657	0.3585	0.7236	0.8960	0.1510
70	W	0.9508	0.6616	0.3436	0.8177	0.9210	0.1509
80	KS	0.9594	0.5063	0.3791	0.7710	0.9295	0.1531
80	AD	0.9123	0.2558	0.4326	0.5541	0.4503	0.1570
80	CV	0.7778	0.1651	0.3924	0.3738	0.3196	0.1568
80	V	0.9594	0.5063	0.3791	0.7710	0.9295	0.1531
80	W	0.9691	0.6998	0.3654	0.8545	0.9413	0.1543
90	KS	0.9726	0.5459	0.3985	0.8121	0.9523	0.1477
90	AD	0.9328	0.2667	0.4450	0.5859	0.4716	0.1480
90	CV	0.8099	0.1729	0.4056	0.3975	0.3346	0.1494
90	V	0.9726	0.5459	0.3985	0.8121	0.9523	0.1477
90	W	0.9783	0.7295	0.3800	0.8840	0.9583	0.1495
100	KS	0.9829	0.5807	0.4163	0.8439	0.9685	0.1527
100	AD	0.9497	0.2783	0.4655	0.6139	0.4916	0.1533
100	CV	0.8396	0.1786	0.4214	0.4243	0.3496	0.1517
100	V	0.9829	0.5807	0.4163	0.8439	0.9685	0.1527
100	W	0.9861	0.7575	0.3952	0.9060	0.9697	0.1510

Table F.23 POWER TABLE: n=Sample Size alpha=0.10 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.8621	0.3534	0.2517	0.5904	0.8066	0.0960
60	AD	0.7599	0.1800	0.2977	0.3850	0.3417	0.0969
60	CVM	0.5849	0.1179	0.2704	0.2538	0.2406	0.0970
60	V	0.8621	0.3534	0.2517	0.5904	0.8066	0.0960
60	W	0.9027	0.5672	0.2427	0.7307	0.8607	0.0975
70	KS	0.9064	0.3979	0.2761	0.6520	0.8619	0.1011
70	AD	0.8103	0.1953	0.3217	0.4243	0.3712	0.1015
70	CV	0.6424	0.1278	0.2906	0.2832	0.2605	0.1000
70	V	0.9064	0.3979	0.2761	0.6520	0.8619	0.1011
70	W	0.9325	0.6132	0.2647	0.7787	0.8984	0.1006
80	KS	0.9366	0.4365	0.2952	0.7061	0.9044	0.1010
80	AD	0.8540	0.2096	0.3458	0.4588	0.3987	0.1053
80	CV	0.6973	0.1386	0.3138	0.3087	0.2819	0.1062
80	V	0.9366	0.4365	0.2952	0.7061	0.9044	0.1010
80	W	0.9573	0.6541	0.2829	0.8206	0.9245	0.1021
90	KS	0.9561	0.4759	0.3122	0.7536	0.9329	0.0990
90	AD	0.8837	0.2194	0.3591	0.4891	0.4192	0.0976
90	CV	0.7351	0.1456	0.3244	0.3326	0.2975	0.0986
90	V	0.9561	0.4759	0.3122	0.7536	0.9329	0.0990
90	W	0.9698	0.6866	0.2968	0.8554	0.9443	0.1002
100	KS	0.9712	0.5109	0.3286	0.7896	0.9545	0.1008
100	AD	0.9093	0.2309	0.3798	0.5227	0.4408	0.1013
100	CV	0.7721	0.1494	0.3406	0.3584	0.3131	0.1026
100	V	0.9712	0.5109	0.3286	0.7896	0.9545	0.1008
100	W	0.9791	0.7186	0.3121	0.8803	0.9597	0.1009

Table F.24 POWER TABLE: n=Sample Size alpha=0.05 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.7866	0.2653	0.1564	0.4789	0.7317	0.0483
60	AD	0.6210	0.1329	0.1966	0.2779	0.2760	0.0486
60	CV	0.4585	0.0869	0.1773	0.1853	0.1933	0.0488
60	V	0.7866	0.2653	0.1564	0.4789	0.7317	0.0483
60	W	0.8618	0.4962	0.1480	0.6640	0.8145	0.0481
70	KS	0.8483	0.3101	0.1771	0.5469	0.8024	0.0522
70	AD	0.6810	0.1461	0.2143	0.3123	0.3025	0.0505
70	CV	0.5156	0.0963	0.1937	0.2104	0.2124	0.0504
70	V	0.8483	0.3101	0.1771	0.5469	0.8024	0.0522
70	W	0.9022	0.5434	0.1676	0.7181	0.8586	0.0517
80	KS	0.8912	0.3466	0.1933	0.6052	0.8564	0.0505
80	AD	0.7421	0.1591	0.2371	0.3453	0.3299	0.0531
80	CV	0.5735	0.1062	0.2125	0.2337	0.2314	0.0536
80	V	0.8912	0.3466	0.1933	0.6052	0.8564	0.0505
80	W	0.9320	0.5814	0.1818	0.7640	0.8925	0.0507
90	KS	0.9223	0.3824	0.2049	0.6586	0.8948	0.0494
90	AD	0.7828	0.1688	0.2443	0.3724	0.3492	0.0484
90	CV	0.6163	0.1126	0.2176	0.2563	0.2478	0.0480
90	V	0.9223	0.3824	0.2049	0.6586	0.8948	0.0494
90	W	0.9517	0.6217	0.1926	0.8063	0.9184	0.0493
100	KS	0.9428	0.4109	0.2155	0.6963	0.9245	0.0502
100	AD	0.8196	0.1752	0.2615	0.4045	0.3699	0.0503
100	CV	0.6583	0.1162	0.2310	0.2778	0.2609	0.0497
100	V	0.9428	0.4109	0.2155	0.6963	0.9245	0.0502
100	W	0.9662	0.6571	0.2055	0.8363	0.9393	0.0501

Table F.25 POWER TABLE: n=Sample Size alpha=0.01 Ho:IGD with mean=1.0, lambda=1.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.6175	0.1502	0.0527	0.3013	0.5664	0.0092
60	AD	0.3900	0.0756	0.0758	0.1575	0.1781	0.0105
60	CV	0.2851	0.0505	0.0676	0.1064	0.1237	0.0101
60	V	0.6175	0.1502	0.0527	0.3013	0.5664	0.0092
60	W	0.7733	0.3739	0.0485	0.5353	0.7036	0.0094
70	KS	0.6987	0.1824	0.0626	0.3638	0.6571	0.0101
70	AD	0.4590	0.0881	0.0900	0.1861	0.2036	0.0119
70	CV	0.3410	0.0587	0.0800	0.1271	0.1414	0.0120
70	V	0.6987	0.1824	0.0626	0.3638	0.6571	0.0101
70	W	0.8311	0.4230	0.0590	0.6011	0.7682	0.0108
80	KS	0.7628	0.2093	0.0696	0.4133	0.7258	0.0102
80	AD	0.5034	0.0955	0.0927	0.2022	0.2194	0.0093
80	CV	0.3764	0.0631	0.0813	0.1392	0.1522	0.0090
80	V	0.7628	0.2093	0.0696	0.4133	0.7258	0.0102
80	W	0.8740	0.4638	0.0650	0.6528	0.8155	0.0105
90	KS	0.8116	0.2324	0.0742	0.4621	0.7818	0.0091
90	AD	0.5587	0.1037	0.1022	0.2281	0.2422	0.0094
90	CV	0.4244	0.0699	0.0914	0.1589	0.1698	0.0093
90	V	0.8116	0.2324	0.0742	0.4621	0.7818	0.0091
90	W	0.9043	0.5003	0.0679	0.6997	0.8503	0.0086
100	KS	0.8558	0.2601	0.0830	0.5144	0.8350	0.0101
100	AD	0.6077	0.1099	0.1106	0.2529	0.2599	0.0093
100	CV	0.4687	0.0751	0.0996	0.1770	0.1838	0.0094
100	V	0.8558	0.2601	0.0830	0.5144	0.8350	0.0101
100	W	0.9291	0.5377	0.0759	0.7357	0.8832	0.0094

Table F.26 POWER TABLE: n=Sample Size alpha=0.20 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	1.0000	0.9753	0.9810	0.9977	0.9954	0.1296
60	AD	1.0000	0.9999	1.0000	1.0000	0.9960	0.0874
60	CV	1.0000	0.9966	0.9992	0.9999	0.9238	0.1031
60	V	1.0000	0.9753	0.9810	0.9977	0.9954	0.1296
60	W	0.9966	0.9066	0.8702	0.9719	0.9858	0.1595
70	KS	1.0000	0.9877	0.9900	0.9988	0.9983	0.1288
70	AD	1.0000	1.0000	1.0000	1.0000	0.9985	0.0813
70	CV	1.0000	0.9990	0.9999	1.0000	0.9473	0.0991
70	V	1.0000	0.9877	0.9900	0.9988	0.9983	0.1288
70	W	0.9988	0.9377	0.9113	0.9853	0.9930	0.1600
80	KS	1.0000	0.9940	0.9956	0.9998	0.9994	0.1279
80	AD	1.0000	1.0000	1.0000	1.0000	0.9994	0.0784
80	CV	1.0000	0.9996	1.0000	1.0000	0.9649	0.0963
80	V	1.0000	0.9940	0.9956	0.9998	0.9994	0.1279
80	W	0.9997	0.9578	0.9391	0.9933	0.9961	0.1575
90	KS	1.0000	0.9972	0.9981	1.0000	0.9998	0.1189
90	AD	1.0000	1.0000	1.0000	1.0000	0.9997	0.0689
90	CV	1.0000	0.9998	1.0000	1.0000	0.9757	0.0856
90	V	1.0000	0.9972	0.9981	1.0000	0.9998	0.1189
90	W	0.9999	0.9730	0.9586	0.9966	0.9979	0.1501
100	KS	1.0000	0.9986	0.9988	1.0000	1.0000	0.1169
100	AD	1.0000	1.0000	1.0000	1.0000	1.0000	0.0642
100	CV	1.0000	0.9999	1.0000	1.0000	0.9828	0.0807
100	V	1.0000	0.9986	0.9988	1.0000	1.0000	0.1169
100	W	0.9999	0.9816	0.9724	0.9981	0.9992	0.1474

Table F.27 POWER TABLE: n=Sample Size alpha=0.15 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.9997	0.9584	0.9650	0.9947	0.9931	0.0937
60	AD	1.0000	0.9999	1.0000	1.0000	0.9935	0.0612
60	CV	1.0000	0.9923	0.9980	0.9997	0.8979	0.0718
60	V	0.9997	0.9584	0.9650	0.9947	0.9931	0.0937
60	W	0.9936	0.8752	0.8150	0.9576	0.9803	0.1152
70	KS	1.0000	0.9777	0.9810	0.9977	0.9976	0.0934
70	AD	1.0000	1.0000	1.0000	1.0000	0.9972	0.0577
70	CV	1.0000	0.9969	0.9998	0.9999	0.9282	0.0696
70	V	1.0000	0.9777	0.9810	0.9977	0.9976	0.0934
70	W	0.9979	0.9151	0.8690	0.9766	0.9899	0.1168
80	KS	1.0000	0.9880	0.9905	0.9995	0.9991	0.0913
80	AD	1.0000	1.0000	1.0000	1.0000	0.9988	0.0556
80	CV	1.0000	0.9989	0.9999	1.0000	0.9502	0.0676
80	V	1.0000	0.9880	0.9905	0.9995	0.9991	0.0913
80	W	0.9992	0.9403	0.9047	0.9886	0.9943	0.1160
90	KS	1.0000	0.9940	0.9950	0.9998	0.9996	0.0848
90	AD	1.0000	1.0000	1.0000	1.0000	0.9994	0.0463
90	CV	1.0000	0.9995	1.0000	1.0000	0.9647	0.0588
90	V	1.0000	0.9940	0.9950	0.9998	0.9996	0.0848
90	W	0.9998	0.9594	0.9339	0.9941	0.9971	0.1092
100	KS	1.0000	0.9968	0.9974	0.9999	1.0000	0.0833
100	AD	1.0000	1.0000	1.0000	1.0000	0.9999	0.0437
100	CV	1.0000	0.9998	1.0000	1.0000	0.9758	0.0570
100	V	1.0000	0.9968	0.9974	0.9999	1.0000	0.0833
100	W	0.9999	0.9725	0.9519	0.9965	0.9987	0.1072

Table F.28 POWER TABLE: n=Sample Size alpha=0.10 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.9991	0.9275	0.9319	0.9875	0.9896	0.0597
60	AD	1.0000	0.9997	0.9998	1.0000	0.9882	0.0377
60	CV	1.0000	0.9796	0.9954	0.9992	0.8593	0.0444
60	V	0.9991	0.9275	0.9319	0.9875	0.9896	0.0597
60	W	0.9881	0.8332	0.7323	0.9344	0.9713	0.0743
70	KS	0.9999	0.9572	0.9612	0.9943	0.9961	0.0602
70	AD	1.0000	0.9999	1.0000	1.0000	0.9942	0.0369
70	CV	1.0000	0.9911	0.9990	0.9998	0.8981	0.0435
70	V	0.9999	0.9572	0.9612	0.9943	0.9961	0.0602
70	W	0.9951	0.8805	0.7983	0.9611	0.9845	0.0751
80	KS	1.0000	0.9755	0.9784	0.9982	0.9984	0.0580
80	AD	1.0000	1.0000	1.0000	1.0000	0.9976	0.0339
80	CV	1.0000	0.9963	0.9995	1.0000	0.9277	0.0415
80	V	1.0000	0.9755	0.9784	0.9982	0.9984	0.0580
80	W	0.9982	0.9152	0.8499	0.9796	0.9911	0.0747
90	KS	1.0000	0.9856	0.9873	0.9994	0.9994	0.0535
90	AD	1.0000	1.0000	1.0000	1.0000	0.9988	0.0273
90	CV	1.0000	0.9985	0.9999	1.0000	0.9472	0.0346
90	V	1.0000	0.9856	0.9873	0.9994	0.9994	0.0535
90	W	0.9994	0.9390	0.8856	0.9884	0.9951	0.0703
100	KS	1.0000	0.9921	0.9929	0.9998	0.9999	0.0523
100	AD	1.0000	1.0000	1.0000	1.0000	0.9996	0.0258
100	CV	1.0000	0.9994	1.0000	1.0000	0.9627	0.0329
100	V	1.0000	0.9921	0.9929	0.9998	0.9999	0.0523
100	W	0.9997	0.9558	0.9103	0.9930	0.9976	0.0683

Table F.29 POWER TABLE: n=Sample Size alpha=0.05 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.9970	0.8524	0.8523	0.9658	0.9786	0.0264
60	AD	1.0000	0.9975	0.9992	1.0000	0.9730	0.0159
60	CV	0.9999	0.9359	0.9837	0.9959	0.7922	0.0198
60	V	0.9970	0.8524	0.8523	0.9658	0.9786	0.0264
60	W	0.9742	0.7641	0.5974	0.8901	0.9519	0.0365
70	KS	0.9992	0.9088	0.9065	0.9838	0.9914	0.0277
70	AD	1.0000	0.9996	1.0000	1.0000	0.9860	0.0166
70	CV	1.0000	0.9664	0.9948	0.9985	0.8434	0.0194
70	V	0.9992	0.9088	0.9065	0.9838	0.9914	0.0277
70	W	0.9882	0.8208	0.6707	0.9288	0.9726	0.0361
80	KS	0.9999	0.9436	0.9414	0.9932	0.9964	0.0271
80	AD	1.0000	0.9999	1.0000	1.0000	0.9933	0.0138
80	CV	1.0000	0.9834	0.9980	0.9998	0.8821	0.0171
80	V	0.9999	0.9436	0.9414	0.9932	0.9964	0.0271
80	W	0.9954	0.8670	0.7385	0.9581	0.9847	0.0352
90	KS	1.0000	0.9637	0.9616	0.9973	0.9987	0.0239
90	AD	1.0000	1.0000	1.0000	1.0000	0.9965	0.0115
90	CV	1.0000	0.9908	0.9992	1.0000	0.9098	0.0149
90	V	1.0000	0.9637	0.9616	0.9973	0.9987	0.0239
90	W	0.9977	0.8987	0.7859	0.9741	0.9910	0.0321
100	KS	0.9999	0.9769	0.9758	0.9988	0.9995	0.0233
100	AD	1.0000	1.0000	1.0000	1.0000	0.9983	0.0100
100	CV	1.0000	0.9957	0.9997	1.0000	0.9346	0.0134
100	V	0.9999	0.9769	0.9758	0.9988	0.9995	0.0233
100	W	0.9988	0.9233	0.8229	0.9827	0.9948	0.0314

Table F.30 POWER TABLE: n=Sample Size alpha=0.01 Ho:IGD with mean=1.0, lambda=5.0

n	test	GAMMA	WEIBULL	LOGN	EXP	UNIFORM	IGD
60	KS	0.9770	0.6565	0.6218	0.8650	0.9398	0.0046
60	AD	1.0000	0.9676	0.9873	0.9983	0.9042	0.0027
60	CV	0.9970	0.7048	0.9088	0.9477	0.6344	0.0027
60	V	0.9770	0.6565	0.6218	0.8650	0.9398	0.0046
60	W	0.9290	0.6248	0.3365	0.7823	0.8946	0.0070
70	KS	0.9919	0.7488	0.7152	0.9240	0.9713	0.0050
70	AD	1.0000	0.9868	0.9965	0.9995	0.9407	0.0023
70	CV	0.9995	0.7950	0.9515	0.9768	0.7011	0.0028
70	V	0.9919	0.7488	0.7152	0.9240	0.9713	0.0050
70	W	0.9612	0.6964	0.4072	0.8450	0.9351	0.0071
80	KS	0.9972	0.8163	0.7804	0.9565	0.9860	0.0043
80	AD	1.0000	0.9957	0.9990	1.0000	0.9668	0.0016
80	CV	0.9999	0.8702	0.9768	0.9920	0.7622	0.0022
80	V	0.9972	0.8163	0.7804	0.9565	0.9860	0.0043
80	W	0.9801	0.7524	0.4720	0.8891	0.9584	0.0064
90	KS	0.9991	0.8643	0.8345	0.9766	0.9940	0.0035
90	AD	1.0000	0.9984	0.9998	1.0000	0.9813	0.0015
90	CV	1.0000	0.9188	0.9888	0.9969	0.8087	0.0018
90	V	0.9991	0.8643	0.8345	0.9766	0.9940	0.0035
90	W	0.9892	0.7972	0.5364	0.9270	0.9752	0.0048
100	KS	0.9996	0.9014	0.8718	0.9879	0.9972	0.0035
100	AD	1.0000	0.9995	1.0000	1.0000	0.9892	0.0011
100	CV	1.0000	0.9479	0.9941	0.9991	0.8465	0.0015
100	V	0.9996	0.9014	0.8718	0.9879	0.9972	0.0035
100	W	0.9945	0.8357	0.5848	0.9470	0.9848	0.0053

Table F.1 POWER TABLE n=Sample Size alpha=.20 Ho:IGD with mean=1.0,lambda=1.0

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.1170	0.1957	0.0044	0.2405	0.0880	0.2812	0.2532	0.2016	0.0404	0.0212	0.0113
10	AD	0.1300	0.2285	0.0099	0.2874	0.0516	0.3668	0.2381	0.2022	0.0130	0.0045	0.0029
10	CV	0.0814	0.1398	0.0042	0.2604	0.0634	0.2383	0.1384	0.2035	0.0182	0.0066	0.0029
10	V	0.1193	0.1973	0.0098	0.2412	0.0880	0.2822	0.2619	0.2014	0.0404	0.0213	0.0114
10	W	0.2189	0.2874	0.1465	0.2293	0.1519	0.3400	0.4429	0.2050	0.1195	0.1153	0.1004
20	KS	0.1334	0.2570	0.0031	0.2863	0.0525	0.4127	0.4615	0.1927	0.0131	0.0046	0.0016
20	AD	0.0980	0.2238	0.0041	0.3286	0.0204	0.4154	0.2858	0.2023	0.0018	0.0003	0.0000
20	CV	0.0549	0.1318	0.0020	0.2993	0.0291	0.2642	0.1841	0.2023	0.0028	0.0004	0.0000
20	V	0.1334	0.2570	0.0037	0.2863	0.0525	0.4127	0.4615	0.1927	0.0131	0.0046	0.0016
20	W	0.2652	0.3985	0.1153	0.2691	0.1058	0.5060	0.6243	0.1895	0.0623	0.0467	0.0368
30	KS	0.1485	0.3234	0.0012	0.3162	0.0347	0.5099	0.6280	0.1981	0.0054	0.0015	0.0003
30	AD	0.0864	0.2329	0.0017	0.3650	0.0128	0.4523	0.3390	0.1986	0.0002	0.0000	0.0000
30	CV	0.0475	0.1436	0.0008	0.3318	0.0174	0.2868	0.2287	0.2005	0.0002	0.0000	0.0000
30	V	0.1485	0.3234	0.0012	0.3162	0.0347	0.5099	0.6280	0.1981	0.0054	0.0015	0.0003
30	W	0.3093	0.4863	0.1029	0.3097	0.0773	0.6163	0.7561	0.1992	0.0336	0.0219	0.0150
40	KS	0.1727	0.3828	0.0007	0.3533	0.0310	0.5968	0.7426	0.1987	0.0026	0.0004	0.0000
40	AD	0.0877	0.2475	0.0003	0.4076	0.0073	0.4971	0.3801	0.1985	0.0000	0.0000	0.0000
40	CV	0.0487	0.1566	0.0000	0.3704	0.0120	0.3307	0.2587	0.1993	0.0002	0.0000	0.0000
40	V	0.1727	0.3828	0.0007	0.3533	0.0310	0.5968	0.7426	0.1987	0.0026	0.0004	0.0000
40	W	0.3494	0.5527	0.0906	0.3415	0.0660	0.7024	0.8243	0.1979	0.0239	0.0102	0.0066
50	KS	0.1887	0.4340	0.0009	0.3811	0.0201	0.6733	0.8197	0.1984	0.0012	0.0001	0.0000
50	AD	0.0814	0.2533	0.0005	0.4266	0.0032	0.5333	0.4014	0.2024	0.0000	0.0000	0.0000
50	CV	0.0458	0.1581	0.0000	0.3869	0.0061	0.3521	0.2805	0.2041	0.0000	0.0000	0.0000
50	V	0.1887	0.4340	0.0009	0.3811	0.0201	0.6733	0.8197	0.1984	0.0012	0.0001	0.0000
50	W	0.3785	0.6077	0.0825	0.3680	0.0499	0.7611	0.8717	0.2005	0.0144	0.0056	0.0028

Table F.2 POWER TABLE n=Sample Size alpha=.10 Ho:IGD with mean=1.0,lambda=1.0

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.0457	0.0897	0.0011	0.1291	0.0383	0.1458	0.1517	0.1047	0.0139	0.0062	0.0026
10	AD	0.0473	0.0963	0.0032	0.1546	0.0202	0.1691	0.1287	0.0981	0.0039	0.0012	0.0004
10	CV	0.0280	0.0501	0.0007	0.1438	0.0267	0.0957	0.0729	0.0994	0.0048	0.0012	0.0003
10	V	0.0468	0.0913	0.0015	0.1293	0.0383	0.1468	0.1541	0.1047	0.0139	0.0062	0.0027
10	W	0.1268	0.1907	0.0671	0.1176	0.0694	0.2274	0.3182	0.1016	0.0492	0.0433	0.0361
20	KS	0.0626	0.1519	0.0013	0.1575	0.0188	0.2589	0.3395	0.0954	0.0045	0.0009	0.0002
20	AD	0.0425	0.1162	0.0021	0.1899	0.0073	0.2243	0.1885	0.0978	0.0005	0.0000	0.0000
20	CV	0.0230	0.0686	0.0007	0.1753	0.0103	0.1340	0.1165	0.0984	0.0008	0.0000	0.0000
20	V	0.0626	0.1519	0.0014	0.1575	0.0188	0.2589	0.3395	0.0954	0.0045	0.0009	0.0002
20	W	0.1772	0.3001	0.0604	0.1502	0.0448	0.3927	0.5206	0.0957	0.0214	0.0140	0.0105
30	KS	0.0771	0.2119	0.0002	0.1904	0.0118	0.3549	0.5115	0.0989	0.0014	0.0002	0.0000
30	AD	0.0464	0.1403	0.0010	0.2176	0.0043	0.2624	0.2401	0.1035	0.0000	0.0000	0.0000
30	CV	0.0228	0.0879	0.0002	0.2009	0.0058	0.1674	0.1597	0.1018	0.0000	0.0000	0.0000
30	V	0.0771	0.2119	0.0002	0.1904	0.0118	0.3549	0.5115	0.0989	0.0014	0.0002	0.0000
30	W	0.2249	0.3876	0.0583	0.1787	0.0319	0.5109	0.6577	0.0985	0.0106	0.0053	0.0032
40	KS	0.1007	0.2661	0.0001	0.2142	0.0106	0.4528	0.6407	0.0946	0.0005	0.0001	0.0000
40	AD	0.0498	0.1590	0.0000	0.2480	0.0037	0.3141	0.2783	0.0959	0.0000	0.0000	0.0000
40	CV	0.0270	0.0992	0.0000	0.2253	0.0044	0.2021	0.1918	0.0977	0.0000	0.0000	0.0000
40	V	0.1007	0.2661	0.0001	0.2142	0.0106	0.4528	0.6407	0.0946	0.0005	0.0001	0.0000
40	W	0.2611	0.4582	0.0476	0.2044	0.0304	0.6015	0.7473	0.0957	0.0065	0.0029	0.0014
50	KS	0.1085	0.3048	0.0003	0.2312	0.0067	0.5266	0.7286	0.1001	0.0003	0.0001	0.0000
50	AD	0.0476	0.1648	0.0000	0.2742	0.0008	0.3472	0.3063	0.0994	0.0000	0.0000	0.0000
50	CV	0.0269	0.1079	0.0000	0.2488	0.0014	0.2220	0.2099	0.1004	0.0000	0.0000	0.0000
50	V	0.1085	0.3048	0.0003	0.2312	0.0067	0.5266	0.7286	0.1001	0.0003	0.0001	0.0000
50	W	0.2909	0.5123	0.0445	0.2201	0.0180	0.6778	0.8099	0.1004	0.0041	0.0013	0.0007

Table F.3 POWER TABLE n=Sample Size alpha=.01 Ho:IGD with mean=1.0,lambda=1.0

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.0011	0.0044	0.0000	0.0190	0.0027	0.0131	0.0141	0.0110	0.0000	0.0001	0.0000
10	AD	0.0013	0.0064	0.0000	0.0247	0.0011	0.0175	0.0162	0.0112	0.0000	0.0001	0.0000
10	CV	0.0004	0.0019	0.0000	0.0233	0.0011	0.0073	0.0062	0.0118	0.0000	0.0001	0.0000
10	V	0.0011	0.0044	0.0000	0.0190	0.0027	0.0132	0.0143	0.0110	0.0000	0.0001	0.0000
10	W	0.0286	0.0621	0.0071	0.0132	0.0049	0.0840	0.1309	0.0105	0.0026	0.0016	0.0014
20	KS	0.0075	0.0366	0.0000	0.0271	0.0010	0.0704	0.1203	0.0100	0.0000	0.0000	0.0000
20	AD	0.0065	0.0284	0.0000	0.0383	0.0006	0.0519	0.0578	0.0111	0.0000	0.0000	0.0000
20	CV	0.0034	0.0162	0.0000	0.0363	0.0006	0.0300	0.0332	0.0113	0.0000	0.0000	0.0000
20	V	0.0075	0.0366	0.0000	0.0271	0.0010	0.0704	0.1203	0.0100	0.0000	0.0000	0.0000
20	W	0.0691	0.1450	0.0103	0.0244	0.0032	0.2131	0.2950	0.0103	0.0012	0.0005	0.0001
30	KS	0.0146	0.0646	0.0000	0.0349	0.0002	0.1235	0.2471	0.0095	0.0000	0.0000	0.0000
30	AD	0.0094	0.0459	0.0000	0.0470	0.0002	0.0788	0.0923	0.0098	0.0000	0.0000	0.0000
30	CV	0.0051	0.0284	0.0000	0.0434	0.0004	0.0472	0.0597	0.0097	0.0000	0.0000	0.0000
30	V	0.0146	0.0646	0.0000	0.0349	0.0002	0.1235	0.2471	0.0095	0.0000	0.0000	0.0000
30	W	0.0990	0.2173	0.0099	0.0306	0.0021	0.3011	0.4413	0.0087	0.0000	0.0001	0.0000
40	KS	0.0233	0.0963	0.0000	0.0444	0.0006	0.1919	0.3673	0.0088	0.0000	0.0000	0.0000
40	AD	0.0129	0.0560	0.0000	0.0600	0.0001	0.1098	0.1257	0.0095	0.0000	0.0000	0.0000
40	CV	0.0073	0.0387	0.0000	0.0562	0.0001	0.0735	0.0861	0.0101	0.0000	0.0000	0.0000
40	V	0.0233	0.0963	0.0000	0.0444	0.0006	0.1919	0.3673	0.0088	0.0000	0.0000	0.0000
40	W	0.1289	0.2784	0.0090	0.0403	0.0016	0.4041	0.5520	0.0084	0.0003	0.0003	0.0000
50	KS	0.0275	0.1216	0.0000	0.0485	0.0001	0.2401	0.4632	0.0093	0.0000	0.0000	0.0000
50	AD	0.0160	0.0643	0.0000	0.0679	0.0000	0.1285	0.1499	0.0109	0.0000	0.0000	0.0000
50	CV	0.0092	0.0442	0.0000	0.0613	0.0000	0.0875	0.1030	0.0108	0.0000	0.0000	0.0000
50	V	0.0275	0.1216	0.0000	0.0485	0.0001	0.2401	0.4632	0.0093	0.0000	0.0000	0.0000
50	W	0.1494	0.3274	0.0102	0.0453	0.0005	0.4766	0.6266	0.0095	0.0001	0.0001	0.0000

Table F.4 POWER TABLE n=Sample Size alpha=.20 Ho:IGD with mean=1.0,lambda=5.0

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.4659	0.5611	0.0648	0.6092	0.3119	0.6795	0.5295	0.5304	0.1964	0.1340	0.0903
10	AD	0.7734	0.8448	0.1433	0.8679	0.4021	0.9206	0.7361	0.7678	0.1959	0.1201	0.0761
10	CV	0.6012	0.7008	0.0770	0.7540	0.3515	0.8254	0.5311	0.6573	0.2011	0.1220	0.0729
10	V	0.4526	0.5526	0.1089	0.5962	0.3076	0.6679	0.5425	0.5185	0.1959	0.1391	0.1001
10	W	0.3001	0.3689	0.2203	0.3255	0.2259	0.4238	0.5285	0.2954	0.2000	0.1886	0.1683
20	KS	0.6499	0.7826	0.0469	0.8143	0.3805	0.8948	0.8043	0.6996	0.1995	0.1025	0.0527
20	AD	0.9521	0.9820	0.1306	0.9868	0.5608	0.9977	0.9164	0.9508	0.1978	0.0697	0.0312
20	CV	0.8210	0.9126	0.0473	0.9439	0.4694	0.9740	0.7190	0.8705	0.1991	0.0808	0.0334
20	V	0.6495	0.7825	0.0576	0.8141	0.3798	0.8944	0.8045	0.6990	0.1997	0.1023	0.0530
20	W	0.4521	0.5805	0.2626	0.5139	0.2688	0.6933	0.7705	0.4155	0.1919	0.1649	0.1405
30	KS	0.7820	0.8977	0.0416	0.9128	0.4413	0.9663	0.9305	0.8110	0.1912	0.0848	0.0380
30	AD	0.9904	0.9988	0.1243	0.9991	0.6769	0.9999	0.9745	0.9910	0.1969	0.0433	0.0132
30	CV	0.9236	0.9785	0.0387	0.9878	0.5524	0.9963	0.8351	0.9520	0.1955	0.0542	0.0161
30	V	0.7820	0.8977	0.0461	0.9127	0.4413	0.9663	0.9305	0.8110	0.1911	0.0848	0.0381
30	W	0.5803	0.7271	0.2872	0.6679	0.3067	0.8367	0.8991	0.5273	0.1979	0.1454	0.1185
40	KS	0.8592	0.9506	0.0393	0.9607	0.4804	0.9915	0.9754	0.8764	0.2012	0.0719	0.0280
40	AD	0.9978	0.9997	0.1157	1.0000	0.7626	1.0000	0.9924	0.9987	0.1979	0.0305	0.0067
40	CV	0.9661	0.9940	0.0296	0.9983	0.6253	0.9996	0.9022	0.9844	0.2001	0.0431	0.0083
40	V	0.8592	0.9506	0.0408	0.9607	0.4804	0.9915	0.9754	0.8764	0.2012	0.0719	0.0280
40	W	0.6748	0.8203	0.3147	0.7861	0.3449	0.9190	0.9530	0.6236	0.2000	0.1357	0.0976
50	KS	0.9144	0.9775	0.0410	0.9855	0.5261	0.9978	0.9910	0.9200	0.1989	0.0630	0.0223
50	AD	0.9996	1.0000	0.1095	1.0000	0.8265	1.0000	0.9968	0.9997	0.1969	0.0208	0.0044
50	CV	0.9863	0.9990	0.0255	0.9995	0.6809	1.0000	0.9395	0.9938	0.1987	0.0309	0.0065
50	V	0.9144	0.9775	0.0416	0.9855	0.5261	0.9978	0.9910	0.9200	0.1989	0.0630	0.0223
50	W	0.7489	0.8844	0.3350	0.8568	0.3793	0.9599	0.9774	0.6933	0.1962	0.1194	0.0839

Table F.5 POWER TABLE n=Sample Size alpha=.10 Ho:IGD with mean=1.0,lambda=5.0

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.2587	0.3626	0.0200	0.4140	0.1766	0.4793	0.3872	0.3521	0.0999	0.0600	0.0337
10	AD	0.5745	0.6901	0.0716	0.7164	0.2350	0.8203	0.5859	0.5810	0.0979	0.0521	0.0299
10	CV	0.3611	0.4885	0.0295	0.5780	0.2120	0.6427	0.3584	0.4756	0.1004	0.0522	0.0251
10	V	0.2588	0.3603	0.0361	0.4111	0.1755	0.4758	0.3974	0.3478	0.1004	0.0601	0.0365
10	W	0.1891	0.2597	0.1204	0.1941	0.1248	0.3065	0.4058	0.1717	0.0957	0.0891	0.0769
20	KS	0.4367	0.6000	0.0160	0.6417	0.2298	0.7685	0.7066	0.5232	0.0951	0.0437	0.0211
20	AD	0.8565	0.9381	0.0756	0.9506	0.3688	0.9851	0.8317	0.8670	0.0972	0.0316	0.0113
20	CV	0.5963	0.7620	0.0214	0.8480	0.3018	0.9076	0.5726	0.7364	0.0968	0.0318	0.0111
20	V	0.4369	0.6000	0.0209	0.6417	0.2298	0.7685	0.7071	0.5232	0.0951	0.0437	0.0212
20	W	0.3251	0.4595	0.1573	0.3492	0.1557	0.5736	0.6778	0.2657	0.0983	0.0765	0.0649
30	KS	0.5916	0.7718	0.0165	0.7892	0.2734	0.9021	0.8767	0.6443	0.0953	0.0340	0.0131
30	AD	0.9599	0.9910	0.0732	0.9943	0.4763	0.9987	0.9376	0.9619	0.0946	0.0190	0.0045
30	CV	0.7763	0.9101	0.0188	0.9543	0.3826	0.9802	0.7218	0.8754	0.0936	0.0207	0.0044
30	V	0.5916	0.7718	0.0181	0.7892	0.2734	0.9021	0.8767	0.6442	0.0953	0.0340	0.0131
30	W	0.4379	0.6092	0.1840	0.4917	0.1808	0.7337	0.8419	0.3591	0.0983	0.0642	0.0483
40	KS	0.6981	0.8660	0.0184	0.8929	0.3126	0.9647	0.9524	0.7483	0.0982	0.0298	0.0079
40	AD	0.9887	0.9990	0.0681	0.9996	0.5725	0.9999	0.9793	0.9923	0.1015	0.0128	0.0020
40	CV	0.8757	0.9660	0.0142	0.9879	0.4485	0.9979	0.8154	0.9450	0.0997	0.0145	0.0026
40	V	0.6981	0.8660	0.0190	0.8929	0.3126	0.9647	0.9524	0.7483	0.0982	0.0298	0.0079
40	W	0.5383	0.7172	0.2074	0.6232	0.2059	0.8464	0.9151	0.4460	0.1017	0.0595	0.0382
50	KS	0.7951	0.9291	0.0181	0.9415	0.3525	0.9864	0.9811	0.8169	0.0953	0.0264	0.0067
50	AD	0.9971	0.9999	0.0634	1.0000	0.6443	1.0000	0.9905	0.9985	0.0946	0.0087	0.0015
50	CV	0.9370	0.9883	0.0136	0.9981	0.5024	0.9998	0.8787	0.9747	0.0956	0.0111	0.0019
50	V	0.7951	0.9291	0.0186	0.9415	0.3525	0.9864	0.9811	0.8169	0.0953	0.0264	0.0067
50	W	0.6177	0.8003	0.2249	0.7130	0.2259	0.9090	0.9562	0.5250	0.0967	0.0535	0.0331

Table F.6 POWER TABLE n=Sample Size alpha=.01 Ho:IGD with mean=1.0,lambda=5.0

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.0379	0.0775	0.0007	0.1139	0.0313	0.1279	0.1361	0.0926	0.0118	0.0049	0.0018
10	AD	0.1102	0.2010	0.0079	0.2584	0.0456	0.3253	0.2142	0.1812	0.0109	0.0037	0.0020
10	CV	0.0512	0.0889	0.0020	0.1982	0.0437	0.1565	0.1044	0.1485	0.0108	0.0032	0.0017
10	V	0.0386	0.0789	0.0013	0.1139	0.0313	0.1289	0.1380	0.0926	0.0118	0.0049	0.0018
10	W	0.0566	0.1006	0.0195	0.0384	0.0184	0.1320	0.1971	0.0317	0.0105	0.0068	0.0060
20	KS	0.1108	0.2229	0.0023	0.2439	0.0412	0.3645	0.4257	0.1597	0.0090	0.0029	0.0012
20	AD	0.3128	0.5242	0.0137	0.6148	0.0758	0.7556	0.4900	0.4345	0.0085	0.0017	0.0003
20	CV	0.1257	0.2536	0.0039	0.4557	0.0672	0.4641	0.2686	0.3306	0.0089	0.0015	0.0003
20	V	0.1108	0.2232	0.0028	0.2439	0.0412	0.3645	0.4257	0.1597	0.0090	0.0029	0.0012
20	W	0.1352	0.2442	0.0348	0.0946	0.0216	0.3309	0.4465	0.0541	0.0085	0.0060	0.0042
30	KS	0.1901	0.3783	0.0018	0.3788	0.0507	0.5703	0.6732	0.2500	0.0089	0.0030	0.0006
30	AD	0.5663	0.7984	0.0146	0.8607	0.1192	0.9441	0.7085	0.6790	0.0090	0.0013	0.0002
30	CV	0.2346	0.4505	0.0029	0.6838	0.0988	0.7413	0.4327	0.5239	0.0094	0.0012	0.0002
30	V	0.1901	0.3783	0.0020	0.3788	0.0507	0.5703	0.6733	0.2500	0.0089	0.0030	0.0006
30	W	0.2118	0.3735	0.0513	0.1604	0.0271	0.4940	0.6432	0.0863	0.0088	0.0041	0.0026
40	KS	0.2804	0.5199	0.0016	0.5211	0.0696	0.7413	0.8255	0.3316	0.0104	0.0021	0.0002
40	AD	0.7659	0.9287	0.0132	0.9622	0.1675	0.9921	0.8393	0.8468	0.0111	0.0010	0.0001
40	CV	0.3563	0.6363	0.0023	0.8426	0.1317	0.8906	0.5570	0.6780	0.0107	0.0007	0.0001
40	V	0.2804	0.5199	0.0016	0.5211	0.0696	0.7413	0.8255	0.3316	0.0104	0.0021	0.0002
40	W	0.2804	0.4791	0.0565	0.2327	0.0378	0.6269	0.7707	0.1187	0.0093	0.0043	0.0020
50	KS	0.3738	0.6404	0.0030	0.6347	0.0773	0.8502	0.9103	0.4184	0.0093	0.0015	0.0002
50	AD	0.8869	0.9784	0.0142	0.9905	0.2210	0.9990	0.9162	0.9336	0.0097	0.0006	0.0000
50	CV	0.4884	0.7703	0.0027	0.9225	0.1650	0.9637	0.6452	0.7951	0.0092	0.0007	0.0000
50	V	0.3738	0.6404	0.0030	0.6347	0.0773	0.8502	0.9103	0.4184	0.0093	0.0015	0.0002
50	W	0.3469	0.5726	0.0676	0.3170	0.0378	0.7342	0.8530	0.1617	0.0096	0.0039	0.0021

Table F.7 POWER TABLE n=Sample Size alpha=.20 Ho:IGD with mean=1.0,lambda=10

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.6031	0.6918	0.1184	0.7290	0.4161	0.7922	0.6282	0.6480	0.2812	0.2060	0.1417
10	AD	0.8827	0.9246	0.2308	0.9392	0.5725	0.9655	0.8346	0.8781	0.3229	0.2056	0.1410
10	CV	0.7587	0.8293	0.1481	0.8644	0.4898	0.9119	0.6682	0.7844	0.3101	0.2048	0.1377
10	V	0.5660	0.6546	0.1754	0.6927	0.3887	0.7602	0.6226	0.6112	0.2680	0.2065	0.1544
10	W	0.3187	0.3845	0.2363	0.3447	0.2429	0.4434	0.5458	0.3126	0.2160	0.2047	0.1865
20	KS	0.8250	0.9059	0.1047	0.9236	0.5539	0.9647	0.8839	0.8487	0.3332	0.2056	0.1214
20	AD	0.9938	0.9982	0.2757	0.9991	0.8401	0.9998	0.9790	0.9920	0.4436	0.2026	0.1045
20	CV	0.9592	0.9850	0.1257	0.9909	0.7038	0.9974	0.8778	0.9679	0.3909	0.2013	0.1034
20	V	0.8223	0.9040	0.1304	0.9222	0.5513	0.9637	0.8839	0.8468	0.3322	0.2057	0.1227
20	W	0.4976	0.6207	0.3004	0.5683	0.3161	0.7304	0.7958	0.4695	0.2301	0.2039	0.1750
30	KS	0.9324	0.9744	0.1081	0.9812	0.6571	0.9947	0.9694	0.9415	0.3777	0.2009	0.1038
30	AD	0.9998	1.0000	0.2994	1.0000	0.9527	1.0000	0.9983	0.9998	0.5624	0.1994	0.0811
30	CV	0.9933	0.9992	0.1155	0.9997	0.8443	0.9999	0.9603	0.9955	0.4720	0.1999	0.0829
30	V	0.9323	0.9741	0.1195	0.9811	0.6570	0.9946	0.9693	0.9414	0.3770	0.2008	0.1041
30	W	0.6476	0.7822	0.3419	0.7384	0.3796	0.8779	0.9224	0.6055	0.2556	0.1992	0.1683
40	KS	0.9724	0.9949	0.1114	0.9961	0.7284	0.9990	0.9931	0.9744	0.4157	0.2009	0.0939
40	AD	1.0000	1.0000	0.3299	1.0000	0.9866	1.0000	0.9996	1.0000	0.6486	0.1976	0.0608
40	CV	0.9990	0.9999	0.1089	1.0000	0.9066	1.0000	0.9886	0.9998	0.5314	0.1988	0.0659
40	V	0.9724	0.9949	0.1174	0.9961	0.7284	0.9990	0.9931	0.9744	0.4158	0.2010	0.0940
40	W	0.7525	0.8734	0.3870	0.8653	0.4471	0.9525	0.9684	0.7174	0.2837	0.2031	0.1540
50	KS	0.9883	0.9988	0.1191	0.9994	0.7967	1.0000	0.9984	0.9906	0.4453	0.1983	0.0851
50	AD	1.0000	1.0000	0.3508	1.0000	0.9973	1.0000	1.0000	1.0000	0.7184	0.1958	0.0482
50	CV	1.0000	1.0000	0.1065	1.0000	0.9555	1.0000	0.9949	0.9999	0.5824	0.1986	0.0569
50	V	0.9883	0.9988	0.1223	0.9994	0.7967	1.0000	0.9984	0.9906	0.4453	0.1983	0.0852
50	W	0.8312	0.9337	0.4251	0.9249	0.5044	0.9823	0.9865	0.7974	0.2956	0.1978	0.1460

Table F.8 POWER TABLE n=Sample Size alpha=.10 Ho:IGD with mean=1.0,lambda=10

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.3874	0.4928	0.0441	0.5401	0.2647	0.6103	0.4799	0.4667	0.1575	0.1041	0.0661
10	AD	0.7418	0.8223	0.1292	0.8438	0.3686	0.9054	0.7101	0.7353	0.1744	0.1038	0.0634
10	CV	0.5552	0.6587	0.0625	0.7216	0.3199	0.7992	0.4966	0.6208	0.1755	0.1050	0.0600
10	V	0.3741	0.4803	0.0748	0.5229	0.2555	0.5941	0.4836	0.4517	0.1526	0.1039	0.0686
10	W	0.2045	0.2735	0.1327	0.2110	0.1390	0.3239	0.4255	0.1868	0.1077	0.1046	0.0898
20	KS	0.6447	0.7787	0.0462	0.8105	0.3759	0.8922	0.8021	0.6947	0.1965	0.1002	0.0514
20	AD	0.9742	0.9905	0.1674	0.9936	0.6552	0.9989	0.9439	0.9721	0.2579	0.1012	0.0465
20	CV	0.8679	0.9404	0.0636	0.9631	0.5236	0.9840	0.7644	0.9032	0.2370	0.1030	0.0461
20	V	0.6437	0.7781	0.0566	0.8100	0.3753	0.8920	0.8017	0.6939	0.1964	0.1001	0.0515
20	W	0.3638	0.4970	0.1860	0.4020	0.1890	0.6149	0.7076	0.3124	0.1268	0.1013	0.0845
30	KS	0.8125	0.9135	0.0485	0.9279	0.4735	0.9735	0.9389	0.8357	0.2158	0.0979	0.0459
30	AD	0.9984	0.9999	0.1968	0.9999	0.8519	1.0000	0.9914	0.9980	0.3515	0.1034	0.0335
30	CV	0.9716	0.9944	0.0647	0.9960	0.6826	0.9991	0.9014	0.9811	0.2963	0.1017	0.0319
30	V	0.8125	0.9135	0.0549	0.9279	0.4733	0.9735	0.9389	0.8356	0.2157	0.0979	0.0460
30	W	0.5073	0.6666	0.2285	0.5762	0.2407	0.7855	0.8721	0.4386	0.1372	0.0961	0.0771
40	KS	0.9061	0.9706	0.0521	0.9763	0.5485	0.9948	0.9809	0.9155	0.2523	0.0963	0.0407
40	AD	1.0000	1.0000	0.2214	1.0000	0.9384	1.0000	0.9980	1.0000	0.4312	0.0995	0.0260
40	CV	0.9940	0.9990	0.0577	0.9997	0.7899	0.9999	0.9587	0.9971	0.3505	0.1007	0.0254
40	V	0.9061	0.9706	0.0547	0.9763	0.5485	0.9948	0.9809	0.9155	0.2523	0.0963	0.0407
40	W	0.6218	0.7824	0.2705	0.7248	0.2882	0.8927	0.9416	0.5519	0.1558	0.1012	0.0689
50	KS	0.9531	0.9907	0.0621	0.9943	0.6286	0.9994	0.9941	0.9594	0.2713	0.0976	0.0383
50	AD	1.0000	1.0000	0.2376	1.0000	0.9800	1.0000	0.9995	1.0000	0.5068	0.1008	0.0214
50	CV	0.9992	1.0000	0.0567	0.9999	0.8705	1.0000	0.9820	0.9996	0.4024	0.1004	0.0219
50	V	0.9531	0.9907	0.0635	0.9943	0.6286	0.9994	0.9941	0.9594	0.2713	0.0976	0.0383
50	W	0.7143	0.8636	0.3022	0.8240	0.3349	0.9491	0.9723	0.6476	0.1665	0.0979	0.0666

Table F.9 POWER TABLE n=Sample Size alpha=.01 Ho:IGD with mean=1.0,lambda=10

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.0758	0.1348	0.0022	0.1784	0.0594	0.2036	0.2011	0.1457	0.0237	0.0118	0.0058
10	AD	0.2271	0.3553	0.0185	0.4091	0.0816	0.5121	0.3259	0.2927	0.0244	0.0104	0.0054
10	CV	0.1153	0.1915	0.0060	0.3128	0.0820	0.3121	0.1752	0.2504	0.0261	0.0104	0.0056
10	V	0.0776	0.1361	0.0045	0.1779	0.0595	0.2041	0.2055	0.1454	0.0237	0.0118	0.0059
10	W	0.0651	0.1124	0.0230	0.0473	0.0219	0.1426	0.2102	0.0384	0.0135	0.0105	0.0075
20	KS	0.2058	0.3570	0.0056	0.3923	0.0911	0.5301	0.5467	0.2912	0.0267	0.0097	0.0038
20	AD	0.6580	0.8140	0.0361	0.8550	0.1993	0.9336	0.7020	0.7071	0.0378	0.0096	0.0034
20	CV	0.3426	0.5356	0.0103	0.6923	0.1699	0.7664	0.4189	0.5619	0.0381	0.0090	0.0035
20	V	0.2058	0.3570	0.0060	0.3923	0.0911	0.5301	0.5467	0.2912	0.0267	0.0097	0.0038
20	W	0.1582	0.2757	0.0475	0.1240	0.0335	0.3637	0.4886	0.0763	0.0153	0.0095	0.0069
30	KS	0.3621	0.5681	0.0062	0.5859	0.1322	0.7612	0.7882	0.4335	0.0330	0.0107	0.0024
30	AD	0.9177	0.9791	0.0510	0.9847	0.3632	0.9959	0.9010	0.9254	0.0569	0.0101	0.0030
30	CV	0.6238	0.8193	0.0111	0.9060	0.2759	0.9506	0.6359	0.7944	0.0536	0.0096	0.0020
30	V	0.3621	0.5681	0.0065	0.5859	0.1322	0.7612	0.7882	0.4335	0.0330	0.0107	0.0024
30	W	0.2503	0.4210	0.0705	0.2199	0.0460	0.5475	0.6952	0.1279	0.0171	0.0096	0.0063
40	KS	0.5144	0.7307	0.0063	0.7586	0.1797	0.9013	0.9118	0.5770	0.0451	0.0103	0.0026
40	AD	0.9853	0.9985	0.0601	0.9993	0.5326	0.9999	0.9739	0.9882	0.0876	0.0102	0.0014
40	CV	0.8204	0.9430	0.0109	0.9802	0.3892	0.9947	0.7757	0.9228	0.0760	0.0110	0.0011
40	V	0.5144	0.7307	0.0064	0.7586	0.1797	0.9013	0.9118	0.5770	0.0451	0.0103	0.0026
40	W	0.3409	0.5443	0.0863	0.3306	0.0633	0.6941	0.8182	0.1894	0.0220	0.0098	0.0058
50	KS	0.6453	0.8453	0.0104	0.8646	0.2127	0.9569	0.9659	0.6811	0.0455	0.0104	0.0021
50	AD	0.9979	1.0000	0.0695	1.0000	0.6774	1.0000	0.9920	0.9991	0.1075	0.0104	0.0016
50	CV	0.9296	0.9860	0.0127	0.9971	0.4850	0.9997	0.8700	0.9723	0.0890	0.0096	0.0015
50	V	0.6453	0.8453	0.0105	0.8646	0.2127	0.9569	0.9659	0.6811	0.0455	0.0104	0.0021
50	W	0.4217	0.6474	0.1054	0.4346	0.0729	0.7963	0.8945	0.2572	0.0238	0.0091	0.0055

Table F.10 POWER TABLE n=Sample Size alpha=.20 Ho:IGD with mean=1.0,lambda=20

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.6903	0.7633	0.1658	0.7953	0.4934	0.8553	0.6909	0.7195	0.3478	0.2663	0.1952
10	AD	0.9258	0.9562	0.2972	0.9651	0.6724	0.9801	0.8821	0.9221	0.4100	0.2747	0.1952
10	CV	0.8348	0.8922	0.2023	0.9135	0.5845	0.9457	0.7423	0.8502	0.3868	0.2734	0.1915
10	V	0.6282	0.7087	0.2218	0.7431	0.4404	0.8057	0.6729	0.6619	0.3153	0.2517	0.1943
10	W	0.3286	0.3960	0.2474	0.3553	0.2528	0.4525	0.5535	0.3262	0.2261	0.2148	0.1960
20	KS	0.9139	0.9588	0.1769	0.9679	0.6913	0.9886	0.9286	0.9247	0.4602	0.3042	0.1940
20	AD	0.9990	1.0000	0.4141	0.9999	0.9453	0.9999	0.9946	0.9988	0.6472	0.3489	0.1965
20	CV	0.9904	0.9953	0.2183	0.9987	0.8455	0.9994	0.9456	0.9907	0.5566	0.3343	0.2004
20	V	0.9075	0.9549	0.2104	0.9644	0.6806	0.9872	0.9256	0.9197	0.4514	0.3013	0.1958
20	W	0.5209	0.6416	0.3241	0.5991	0.3467	0.7524	0.8108	0.4976	0.2567	0.2254	0.1947
30	KS	0.9824	0.9943	0.1933	0.9958	0.8039	0.9994	0.9861	0.9813	0.5435	0.3345	0.1954
30	AD	1.0000	1.0000	0.4888	1.0000	0.9936	1.0000	0.9997	1.0000	0.8269	0.4214	0.2024
30	CV	0.9996	1.0000	0.2271	1.0000	0.9575	1.0000	0.9906	0.9997	0.7051	0.3885	0.1993
30	V	0.9818	0.9940	0.2128	0.9958	0.8020	0.9994	0.9858	0.9808	0.5411	0.3329	0.1951
30	W	0.6864	0.8102	0.3777	0.7760	0.4275	0.8985	0.9348	0.6497	0.2939	0.2327	0.2012
40	KS	0.9953	0.9998	0.2150	0.9996	0.8787	0.9999	0.9978	0.9968	0.6117	0.3542	0.1980
40	AD	1.0000	1.0000	0.5668	1.0000	0.9999	1.0000	1.0000	1.0000	0.9235	0.4951	0.1960
40	CV	1.0000	1.0000	0.2434	1.0000	0.9886	1.0000	0.9980	1.0000	0.7940	0.4382	0.1984
40	V	0.9951	0.9998	0.2268	0.9996	0.8785	0.9999	0.9978	0.9968	0.6106	0.3541	0.1978
40	W	0.7984	0.9005	0.4326	0.9003	0.5093	0.9683	0.9747	0.7705	0.3373	0.2513	0.1967
50	KS	0.9990	0.9999	0.2476	0.9999	0.9287	1.0000	0.9992	0.9993	0.6656	0.3775	0.1932
50	AD	1.0000	1.0000	0.6352	1.0000	1.0000	1.0000	1.0000	1.0000	0.9715	0.5607	0.1978
50	CV	1.0000	1.0000	0.2520	1.0000	0.9975	1.0000	0.9998	1.0000	0.8654	0.4697	0.1935
50	V	0.9990	0.9999	0.2557	0.9999	0.9285	1.0000	0.9992	0.9993	0.6653	0.3773	0.1932
50	W	0.8749	0.9540	0.4825	0.9523	0.5780	0.9885	0.9901	0.8508	0.3659	0.2577	0.1950

Table F.11 POWER TABLE n=Sample Size alpha=.10 Ho:IGD with mean=1.0,lambda=20

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.4895	0.5814	0.0717	0.6300	0.3274	0.7003	0.5470	0.5472	0.2110	0.1449	0.0980
10	AD	0.8160	0.8788	0.1717	0.8965	0.4619	0.9387	0.7745	0.8101	0.2366	0.1470	0.0967
10	CV	0.6699	0.7538	0.1017	0.8031	0.4039	0.8662	0.5855	0.7104	0.2412	0.1506	0.0941
10	V	0.4515	0.5514	0.1086	0.5948	0.3070	0.6667	0.5415	0.5173	0.1954	0.1382	0.0993
10	W	0.2138	0.2829	0.1408	0.2234	0.1470	0.3339	0.4366	0.1978	0.1147	0.1115	0.0973
20	KS	0.7820	0.8765	0.0851	0.8999	0.5052	0.9508	0.8623	0.8118	0.2904	0.1726	0.0975
20	AD	0.9933	0.9981	0.2655	0.9989	0.8306	0.9997	0.9774	0.9912	0.4279	0.1913	0.0983
20	CV	0.9552	0.9831	0.1179	0.9898	0.6906	0.9972	0.8712	0.9641	0.3768	0.1922	0.0975
20	V	0.7772	0.8740	0.1056	0.8969	0.5020	0.9498	0.8616	0.8080	0.2870	0.1715	0.0981
20	W	0.3889	0.5221	0.2059	0.4340	0.2112	0.6372	0.7260	0.3422	0.1439	0.1172	0.0996
30	KS	0.9243	0.9698	0.1013	0.9783	0.6393	0.9929	0.9663	0.9335	0.3601	0.1881	0.0963
30	AD	0.9999	1.0000	0.3358	1.0000	0.9672	1.0000	0.9988	0.9999	0.6232	0.2394	0.0996
30	CV	0.9961	0.9994	0.1301	0.9998	0.8709	1.0000	0.9686	0.9964	0.5144	0.2275	0.0989
30	V	0.9238	0.9697	0.1121	0.9780	0.6379	0.9929	0.9661	0.9330	0.3589	0.1879	0.0965
30	W	0.5474	0.6966	0.2569	0.6268	0.2741	0.8136	0.8868	0.4903	0.1691	0.1209	0.0973
40	KS	0.9745	0.9954	0.1147	0.9964	0.7369	0.9990	0.9936	0.9757	0.4246	0.2071	0.0979
40	AD	1.0000	1.0000	0.4098	1.0000	0.9962	1.0000	0.9999	1.0000	0.7782	0.2957	0.0973
40	CV	0.9999	1.0000	0.1430	1.0000	0.9496	1.0000	0.9934	0.9999	0.6222	0.2679	0.0986
40	V	0.9745	0.9954	0.1211	0.9964	0.7365	0.9990	0.9936	0.9757	0.4246	0.2067	0.0980
40	W	0.6731	0.8192	0.3139	0.7844	0.3436	0.9183	0.9525	0.6217	0.1987	0.1348	0.0967
50	KS	0.9914	0.9990	0.1349	0.9996	0.8197	1.0000	0.9986	0.9928	0.4782	0.2221	0.0965
50	AD	1.0000	1.0000	0.4765	1.0000	0.9999	1.0000	1.0000	1.0000	0.8826	0.3387	0.0961
50	CV	1.0000	1.0000	0.1532	1.0000	0.9844	1.0000	0.9981	1.0000	0.7093	0.2945	0.0999
50	V	0.9914	0.9990	0.1384	0.9996	0.8197	1.0000	0.9986	0.9928	0.4778	0.2221	0.0966
50	W	0.7694	0.8967	0.3567	0.8761	0.4058	0.9677	0.9801	0.7216	0.2196	0.1354	0.0975

Table F.12 POWER TABLE n=Sample Size alpha=.01 Ho:IGD with mean=1.0,lambda=20

n	test	GAM	WEIB1	WEIB2	LOG1	LOG2	EXP	UNIF	IGD1	IGD2	IGD3	IGD4
10	KS	0.1162	0.1939	0.0044	0.2380	0.0875	0.2789	0.2516	0.2000	0.0398	0.0209	0.0112
10	AD	0.3206	0.4601	0.0283	0.5061	0.1134	0.6205	0.4015	0.3677	0.0383	0.0179	0.0101
10	CV	0.1917	0.2927	0.0118	0.4087	0.1211	0.4388	0.2364	0.3328	0.0463	0.0209	0.0097
10	V	0.1175	0.1926	0.0097	0.2368	0.0869	0.2781	0.2582	0.1986	0.0395	0.0207	0.0107
10	W	0.0698	0.1201	0.0261	0.0529	0.0255	0.1500	0.2204	0.0433	0.0162	0.0125	0.0094
20	KS	0.3104	0.4797	0.0092	0.5206	0.1519	0.6565	0.6334	0.4035	0.0535	0.0228	0.0096
20	AD	0.8302	0.9218	0.0678	0.9400	0.3330	0.9803	0.8111	0.8456	0.0835	0.0242	0.0102
20	CV	0.5731	0.7433	0.0202	0.8352	0.2870	0.8986	0.5569	0.7225	0.0900	0.0293	0.0102
20	V	0.3104	0.4795	0.0108	0.5205	0.1519	0.6564	0.6338	0.4035	0.0534	0.0228	0.0096
20	W	0.1709	0.2940	0.0565	0.1434	0.0417	0.3842	0.5127	0.0893	0.0195	0.0129	0.0097
30	KS	0.5264	0.7217	0.0136	0.7409	0.2307	0.8702	0.8560	0.5877	0.0740	0.0267	0.0086
30	AD	0.9838	0.9973	0.1043	0.9983	0.6043	0.9997	0.9630	0.9840	0.1537	0.0315	0.0090
30	CV	0.8660	0.9556	0.0277	0.9775	0.4657	0.9909	0.7841	0.9197	0.1422	0.0340	0.0090
30	V	0.5264	0.7217	0.0144	0.7409	0.2307	0.8702	0.8560	0.5876	0.0740	0.0267	0.0086
30	W	0.2795	0.4540	0.0882	0.2626	0.0596	0.5822	0.7270	0.1600	0.0249	0.0151	0.0099
40	KS	0.6975	0.8659	0.0183	0.8924	0.3122	0.9645	0.9523	0.7480	0.0981	0.0298	0.0079
40	AD	0.9994	0.9999	0.1394	1.0000	0.8190	1.0000	0.9951	0.9992	0.2473	0.0446	0.0091
40	CV	0.9700	0.9948	0.0307	0.9986	0.6385	0.9998	0.9073	0.9864	0.2101	0.0453	0.0087
40	V	0.6975	0.8659	0.0189	0.8924	0.3122	0.9645	0.9523	0.7480	0.0981	0.0298	0.0079
40	W	0.3854	0.5880	0.1084	0.3972	0.0866	0.7323	0.8469	0.2417	0.0329	0.0168	0.0098
50	KS	0.8326	0.9446	0.0227	0.9581	0.3896	0.9908	0.9838	0.8467	0.1156	0.0327	0.0092
50	AD	1.0000	1.0000	0.1737	1.0000	0.9379	1.0000	0.9991	0.9998	0.3542	0.0532	0.0108
50	CV	0.9955	0.9999	0.0361	0.9999	0.7709	1.0000	0.9633	0.9978	0.2791	0.0523	0.0102
50	V	0.8326	0.9446	0.0233	0.9581	0.3896	0.9908	0.9838	0.8467	0.1156	0.0327	0.0092
50	W	0.4744	0.6922	0.1363	0.5212	0.1078	0.8362	0.9172	0.3302	0.0370	0.0155	0.0118

Table G.1 POWER OF KS-AD SEQUENTIAL TEST FOR N= 10 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04194	0.15320	0.30358	0.43372	0.54200
0.05	0.14572	0.18762	0.30716	0.43406	0.54206
0.10	0.24566	0.26424	0.33796	0.44178	0.54364
0.15	0.33714	0.34576	0.38982	0.46700	0.55328
0.20	0.41876	0.42336	0.44946	0.50342	0.57242

Table G.2 POWER OF KS-AD SEQUENTIAL TEST FOR N= 10 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.00860	0.04350	0.09654	0.15972	0.22984
0.05	0.04416	0.05674	0.09960	0.16048	0.23006
0.10	0.09016	0.09492	0.12048	0.16904	0.23324
0.15	0.13950	0.14104	0.15638	0.19244	0.24548
0.20	0.19252	0.19330	0.20152	0.22628	0.26826

Table G.3 POWER OF KS-AD SEQUENTIAL TEST FOR N= 10 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02860	0.08658	0.15464	0.22160	0.28768
0.05	0.07132	0.10210	0.15924	0.22292	0.28794
0.10	0.12774	0.14106	0.18054	0.23316	0.29260
0.15	0.18416	0.18936	0.21422	0.25504	0.30598
0.20	0.23960	0.24184	0.25668	0.28688	0.32840

Table G.4 POWER OF KS-AD SEQUENTIAL TEST FOR N= 10 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01730	0.07862	0.17148	0.27150	0.36714
0.05	0.07496	0.09874	0.17462	0.27210	0.36732
0.10	0.14434	0.15402	0.20266	0.28156	0.37002
0.15	0.21508	0.21904	0.24822	0.30724	0.38178
0.20	0.28406	0.28596	0.30326	0.34528	0.40532

Table G.5 POWER OF KS-AD SEQUENTIAL TEST FOR N= 10 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01886	0.07080	0.12776	0.18384	0.23848
0.05	0.08484	0.09490	0.13182	0.18398	0.23852
0.10	0.15244	0.15442	0.16866	0.19782	0.24102
0.15	0.20530	0.20582	0.21198	0.22828	0.25674
0.20	0.25274	0.25288	0.25556	0.26468	0.28370

Table G.6 POWER OF KS-AD SEQUENTIAL TEST FOR N= 10 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01430	0.04940	0.09762	0.14824	0.19710
0.05	0.05220	0.06708	0.10434	0.15028	0.19786
0.10	0.10046	0.10590	0.12854	0.16418	0.20566
0.15	0.14906	0.15064	0.16292	0.18832	0.22180
0.20	0.19862	0.19902	0.20514	0.22170	0.24702

Table G.7 POWER OF KS-AD SEQUENTIAL TEST FOR N= 20 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.17384	0.28178	0.42908	0.55300	0.65766
0.05	0.33266	0.36238	0.45180	0.55844	0.65850
0.10	0.44924	0.46132	0.50820	0.58350	0.66726
0.15	0.53628	0.54240	0.57018	0.62112	0.68600
0.20	0.60836	0.61182	0.62922	0.66324	0.71080

Table G.8 POWER OF KS-AD SEQUENTIAL TEST FOR N= 20 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03884	0.07102	0.11488	0.16420	0.22160
0.05	0.09506	0.10320	0.12860	0.16900	0.22310
0.10	0.15280	0.15518	0.16680	0.19222	0.23572
0.15	0.20678	0.20776	0.21368	0.23002	0.26120
0.20	0.26042	0.26076	0.26368	0.27318	0.29500

Table G.9 POWER OF KS-AD SEQUENTIAL TEST FOR N= 20 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04578	0.11876	0.19398	0.26532	0.33348
0.05	0.10064	0.14042	0.20262	0.26888	0.33484
0.10	0.16582	0.18410	0.22792	0.28290	0.34202
0.15	0.22762	0.23652	0.26516	0.30780	0.35764
0.20	0.28708	0.29106	0.30932	0.34112	0.38150

Table G.10 POWER OF KS-AD SEQUENTIAL TEST FOR N= 20 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07472	0.13126	0.21860	0.31186	0.40766
0.05	0.17058	0.18510	0.23802	0.31750	0.40906
0.10	0.25678	0.26172	0.28918	0.34438	0.42016
0.15	0.33244	0.33462	0.35016	0.38738	0.44530
0.20	0.40568	0.40690	0.41586	0.43946	0.48174

Table G.11 POWER OF KS-AD SEQUENTIAL TEST FOR N= 20 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12992	0.15156	0.19858	0.24772	0.29564
0.05	0.26336	0.26456	0.27216	0.28832	0.31460
0.10	0.35262	0.35286	0.35482	0.35942	0.36896
0.15	0.41878	0.41884	0.41948	0.42112	0.42570
0.20	0.47238	0.47240	0.47260	0.47322	0.47548

Table G.12 POWER OF KS-AD SEQUENTIAL TEST FOR N= 20 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01534	0.05466	0.10194	0.15002	0.20112
0.05	0.05360	0.07358	0.11096	0.15394	0.20326
0.10	0.10212	0.11088	0.13524	0.16982	0.21268
0.15	0.15198	0.15508	0.16986	0.19476	0.23004
0.20	0.20156	0.20298	0.21130	0.22880	0.25644

Table G.13 POWER OF KS-AD SEQUENTIAL TEST FOR N= 30 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.29604	0.38812	0.54108	0.66356	0.75216
0.05	0.48404	0.50366	0.57894	0.67430	0.75512
0.10	0.60542	0.61266	0.64766	0.70780	0.76902
0.15	0.68450	0.68834	0.70810	0.74526	0.79056
0.20	0.74482	0.74720	0.75886	0.78230	0.81440

Table G.14 POWER OF KS-AD SEQUENTIAL TEST FOR N= 30 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06432	0.09066	0.13398	0.18090	0.23052
0.05	0.13610	0.14062	0.15928	0.19274	0.23582
0.10	0.20634	0.20710	0.21380	0.23108	0.26048
0.15	0.26492	0.26502	0.26768	0.27684	0.29664
0.20	0.31986	0.31990	0.32114	0.32656	0.33852

Table G.15 POWER OF KS-AD SEQUENTIAL TEST FOR N= 30 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05690	0.13922	0.22308	0.30180	0.36994
0.05	0.11526	0.16324	0.23280	0.30610	0.37176
0.10	0.18896	0.21182	0.26048	0.32188	0.38068
0.15	0.25596	0.26758	0.30036	0.34820	0.39820
0.20	0.31900	0.32466	0.34672	0.38272	0.42394

Table G.16 POWER OF KS-AD SEQUENTIAL TEST FOR N= 30 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.13042	0.17866	0.26938	0.36452	0.45368
0.05	0.25234	0.26118	0.30594	0.37854	0.45842
0.10	0.35806	0.36050	0.37964	0.42338	0.48310
0.15	0.44034	0.44160	0.45154	0.47782	0.51964
0.20	0.51240	0.51306	0.51896	0.53552	0.56400

Table G.17 POWER OF KS-AD SEQUENTIAL TEST FOR N= 30 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.24580	0.25120	0.27150	0.30462	0.34276
0.05	0.40990	0.41002	0.41128	0.41580	0.42304
0.10	0.50960	0.50960	0.50984	0.51062	0.51216
0.15	0.57530	0.57530	0.57538	0.57558	0.57592
0.20	0.62660	0.62660	0.62662	0.62668	0.62688

Table G.18 POWER OF KS-AD SEQUENTIAL TEST FOR N= 30 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01604	0.05458	0.10556	0.15738	0.20580
0.05	0.05278	0.07368	0.11464	0.16216	0.20788
0.10	0.10330	0.11264	0.14090	0.17874	0.21878
0.15	0.15506	0.15902	0.17634	0.20456	0.23750
0.20	0.20292	0.20444	0.21550	0.23586	0.26196

Table G.19 POWER OF KS-AD SEQUENTIAL TEST FOR N= 40 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.42130	0.49846	0.63824	0.74324	0.81840
0.05	0.62164	0.63530	0.69148	0.76120	0.82416
0.10	0.72564	0.73116	0.75584	0.79612	0.83974
0.15	0.78934	0.79204	0.80566	0.83052	0.85994
0.20	0.83598	0.83748	0.84536	0.86078	0.88032

Table G.20 POWER OF KS-AD SEQUENTIAL TEST FOR N= 40 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.09718	0.12000	0.15882	0.20276	0.25052
0.05	0.19254	0.19462	0.20620	0.22868	0.26390
0.10	0.26700	0.26734	0.27104	0.28092	0.30124
0.15	0.32916	0.32922	0.33052	0.33460	0.34682
0.20	0.38632	0.38632	0.38708	0.38934	0.39636

Table G.21 POWER OF KS-AD SEQUENTIAL TEST FOR N= 40 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07162	0.16410	0.25618	0.33510	0.40286
0.05	0.14098	0.19452	0.26810	0.34062	0.40558
0.10	0.21958	0.24824	0.30106	0.36036	0.41748
0.15	0.28898	0.30364	0.34030	0.38726	0.43536
0.20	0.35458	0.36146	0.38568	0.42140	0.46134

Table G.22 POWER OF KS-AD SEQUENTIAL TEST FOR N= 40 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.19346	0.23432	0.32154	0.41604	0.50528
0.05	0.35026	0.35530	0.38696	0.44490	0.51740
0.10	0.45720	0.45854	0.47156	0.50310	0.55170
0.15	0.53460	0.53536	0.54280	0.56156	0.59410
0.20	0.60024	0.60076	0.60548	0.61710	0.63830

Table G.23 POWER OF KS-AD SEQUENTIAL TEST FOR N= 40 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.36484	0.36598	0.37200	0.38470	0.40508
0.05	0.54504	0.54506	0.54528	0.54590	0.54758
0.10	0.64134	0.64134	0.64134	0.64140	0.64174
0.15	0.69936	0.69936	0.69936	0.69936	0.69940
0.20	0.74376	0.74376	0.74376	0.74376	0.74378

Table G.24 POWER OF KS-AD SEQUENTIAL TEST FOR N= 40 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01596	0.05380	0.10334	0.15284	0.20146
0.05	0.05420	0.07396	0.11354	0.15792	0.20424
0.10	0.10282	0.11226	0.13950	0.17530	0.21614
0.15	0.15040	0.15498	0.17254	0.20018	0.23456
0.20	0.19884	0.20076	0.21212	0.23290	0.26026

Table G.25 POWER OF KS-AD SEQUENTIAL TEST FOR N= 50 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.53014	0.59094	0.71252	0.80406	0.86514
0.05	0.71562	0.72544	0.76922	0.82494	0.87204
0.10	0.80662	0.81018	0.82838	0.85718	0.88832
0.15	0.85684	0.85850	0.86776	0.88466	0.90498
0.20	0.89240	0.89326	0.89834	0.90842	0.92154

Table G.26 POWER OF KS-AD SEQUENTIAL TEST FOR N= 50 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12714	0.14388	0.17778	0.21862	0.26232
0.05	0.23322	0.23470	0.24150	0.25874	0.28562
0.10	0.31510	0.31522	0.31660	0.32286	0.33556
0.15	0.37956	0.37958	0.38000	0.38284	0.38930
0.20	0.43816	0.43816	0.43826	0.43960	0.44286

Table G.27 POWER OF KS-AD SEQUENTIAL TEST FOR N= 50 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.08380	0.18240	0.27904	0.35780	0.42850
0.05	0.15416	0.21272	0.29184	0.36402	0.43138
0.10	0.23956	0.26984	0.32554	0.38502	0.44404
0.15	0.31162	0.32726	0.36622	0.41338	0.46346
0.20	0.38014	0.38826	0.41400	0.44950	0.49038

Table G.28 POWER OF KS-AD SEQUENTIAL TEST FOR N= 50 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.25206	0.28204	0.36198	0.45162	0.53610
0.05	0.41656	0.41986	0.44326	0.49264	0.55532
0.10	0.52806	0.52910	0.53754	0.56096	0.59914
0.15	0.60522	0.60572	0.61008	0.62278	0.64674
0.20	0.66754	0.66778	0.67016	0.67786	0.69328

Table G.29 POWER OF KS-AD SEQUENTIAL TEST FOR N= 50 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.47668	0.47680	0.47822	0.48168	0.48866
0.05	0.64812	0.64814	0.64818	0.64830	0.64856
0.10	0.73398	0.73398	0.73398	0.73398	0.73400
0.15	0.78394	0.78394	0.78394	0.78394	0.78394
0.20	0.82052	0.82052	0.82052	0.82052	0.82052

Table G.30 POWER OF KS-AD SEQUENTIAL TEST FOR N= 50 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01600	0.05190	0.10152	0.15070	0.19890
0.05	0.05120	0.07152	0.11152	0.15596	0.20186
0.10	0.09936	0.10918	0.13678	0.17302	0.21314
0.15	0.14608	0.15092	0.16996	0.19800	0.23182
0.20	0.19746	0.19970	0.21146	0.23254	0.25930

Table G.31 POWER OF KS-CV SEQUENTIAL TEST FOR N= 10 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03358	0.08468	0.18284	0.28964	0.39196
0.05	0.14520	0.15628	0.20718	0.29402	0.39228
0.10	0.24552	0.24962	0.27546	0.33052	0.40614
0.15	0.33712	0.33852	0.35162	0.38572	0.43968
0.20	0.41876	0.41924	0.42598	0.44638	0.48376

Table G.32 POWER OF KS-CV SEQUENTIAL TEST FOR N= 10 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.00560	0.02302	0.05450	0.09396	0.14036
0.05	0.04412	0.04700	0.06378	0.09626	0.14060
0.10	0.09016	0.09078	0.09876	0.11854	0.15164
0.15	0.13950	0.13970	0.14318	0.15528	0.17878
0.20	0.19252	0.19258	0.19424	0.20078	0.21652

Table G.33 POWER OF KS-CV SEQUENTIAL TEST FOR N= 10 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02610	0.08050	0.14230	0.20200	0.26018
0.05	0.07036	0.09496	0.14594	0.20244	0.26020
0.10	0.12750	0.13572	0.16706	0.21190	0.26380
0.15	0.18416	0.18634	0.20280	0.23422	0.27688
0.20	0.23960	0.24012	0.24780	0.26794	0.30034

Table G.34 POWER OF KS-CV SEQUENTIAL TEST FOR N= 10 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01244	0.04284	0.09660	0.16628	0.24310
0.05	0.07482	0.08152	0.11212	0.16946	0.24340
0.10	0.14428	0.14626	0.16168	0.19918	0.25714
0.15	0.21508	0.21568	0.22326	0.24592	0.28872
0.20	0.28406	0.28418	0.28804	0.30156	0.33098

Table G.35 POWER OF KS-CV SEQUENTIAL TEST FOR N= 10 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01452	0.03582	0.07062	0.10378	0.13960
0.05	0.08482	0.08552	0.09376	0.11134	0.14080
0.10	0.15244	0.15248	0.15410	0.15930	0.17092
0.15	0.20530	0.20530	0.20570	0.20738	0.21276
0.20	0.25274	0.25274	0.25282	0.25336	0.25600

Table G.36 POWER OF KS-CV SEQUENTIAL TEST FOR N= 10 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01382	0.04996	0.09900	0.14928	0.20064
0.05	0.05200	0.06584	0.10354	0.15012	0.20072
0.10	0.10046	0.10430	0.12572	0.16138	0.20484
0.15	0.14906	0.14980	0.15996	0.18384	0.21762
0.20	0.19862	0.19868	0.20290	0.21684	0.24058

Table G.37 POWER OF KS-CV SEQUENTIAL TEST FOR N= 20 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.16886	0.20174	0.28754	0.38862	0.48398
0.05	0.33222	0.33828	0.36800	0.42574	0.49868
0.10	0.44910	0.45176	0.46502	0.49588	0.54228
0.15	0.53622	0.53720	0.54464	0.56372	0.59414
0.20	0.60836	0.60866	0.61294	0.62538	0.64556

Table G.38 POWER OF KS-CV SEQUENTIAL TEST FOR N= 20 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03556	0.04722	0.06874	0.09708	0.13050
0.05	0.09494	0.09606	0.10262	0.11728	0.14150
0.10	0.15280	0.15306	0.15508	0.16200	0.17590
0.15	0.20678	0.20688	0.20790	0.21150	0.22014
0.20	0.26042	0.26048	0.26076	0.26244	0.26758

Table G.39 POWER OF KS-CV SEQUENTIAL TEST FOR N= 20 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04330	0.11016	0.18102	0.24536	0.30358
0.05	0.09922	0.13096	0.18850	0.24812	0.30476
0.10	0.16532	0.17646	0.21358	0.26168	0.31192
0.15	0.22754	0.23142	0.25236	0.28732	0.32894
0.20	0.28708	0.28814	0.29904	0.32258	0.35524

Table G.40 POWER OF KS-CV SEQUENTIAL TEST FOR N= 20 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07088	0.08946	0.13284	0.19126	0.25836
0.05	0.17038	0.17300	0.18780	0.22098	0.27190
0.10	0.25672	0.25752	0.26404	0.28182	0.31406
0.15	0.33242	0.33276	0.33620	0.34668	0.36804
0.20	0.40566	0.40578	0.40736	0.41396	0.42726

Table G.41 POWER OF KS-CV SEQUENTIAL TEST FOR N= 20 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12948	0.13260	0.14436	0.16624	0.19350
0.05	0.26336	0.26338	0.26386	0.26582	0.26982
0.10	0.35262	0.35262	0.35266	0.35306	0.35416
0.15	0.41878	0.41878	0.41878	0.41886	0.41922
0.20	0.47238	0.47238	0.47238	0.47240	0.47252

Table G.42 POWER OF KS-CV SEQUENTIAL TEST FOR N= 20 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01494	0.05406	0.10228	0.15248	0.20142
0.05	0.05326	0.07118	0.10864	0.15498	0.20228
0.10	0.10202	0.10850	0.13148	0.16728	0.20864
0.15	0.15196	0.15374	0.16572	0.19078	0.22384
0.20	0.20156	0.20198	0.20768	0.22380	0.24842

Table G.43 POWER OF KS-CV SEQUENTIAL TEST FOR N= 30 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.29348	0.31312	0.38712	0.48298	0.57532
0.05	0.48390	0.48664	0.50512	0.54800	0.60648
0.10	0.60536	0.60648	0.61400	0.63474	0.66628
0.15	0.68448	0.68490	0.68882	0.70100	0.72032
0.20	0.74482	0.74496	0.74732	0.75458	0.76714

Table G.44 POWER OF KS-CV SEQUENTIAL TEST FOR N= 30 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06206	0.06872	0.08548	0.10986	0.13750
0.05	0.13602	0.13634	0.13952	0.14792	0.16288
0.10	0.20634	0.20642	0.20720	0.21000	0.21696
0.15	0.26492	0.26492	0.26514	0.26654	0.26990
0.20	0.31986	0.31986	0.32000	0.32076	0.32258

Table G.45 POWER OF KS-CV SEQUENTIAL TEST FOR N= 30 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05344	0.12828	0.20274	0.27350	0.33670
0.05	0.11296	0.15196	0.21226	0.27740	0.33832
0.10	0.18842	0.20278	0.24104	0.29374	0.34742
0.15	0.25584	0.26112	0.28382	0.32176	0.36640
0.20	0.31900	0.32086	0.33316	0.35994	0.39426

Table G.46 POWER OF KS-CV SEQUENTIAL TEST FOR N= 30 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12782	0.13994	0.17586	0.23076	0.29322
0.05	0.25230	0.25336	0.26220	0.28662	0.32566
0.10	0.35804	0.35844	0.36182	0.37304	0.39346
0.15	0.44034	0.44056	0.44216	0.44874	0.46076
0.20	0.51240	0.51246	0.51338	0.51784	0.52550

Table G.47 POWER OF KS-CV SEQUENTIAL TEST FOR N= 30 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.24572	0.24600	0.24798	0.25364	0.26368
0.05	0.40990	0.40990	0.40994	0.41006	0.41056
0.10	0.50960	0.50960	0.50960	0.50960	0.50968
0.15	0.57530	0.57530	0.57530	0.57530	0.57532
0.20	0.62660	0.62660	0.62660	0.62660	0.62660

Table G.48 POWER OF KS-CV SEQUENTIAL TEST FOR N= 30 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01534	0.05364	0.10372	0.15656	0.20596
0.05	0.05218	0.07146	0.11088	0.15928	0.20710
0.10	0.10318	0.11042	0.13536	0.17326	0.21518
0.15	0.15504	0.15738	0.17024	0.19746	0.23136
0.20	0.20290	0.20334	0.21014	0.22848	0.25418

Table G.49 POWER OF KS-CV SEQUENTIAL TEST FOR N= 40 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.41902	0.43176	0.48962	0.57450	0.65376
0.05	0.62138	0.62340	0.63526	0.66384	0.70414
0.10	0.72556	0.72640	0.73150	0.74418	0.76492
0.15	0.78932	0.78972	0.79238	0.79958	0.81202
0.20	0.83598	0.83622	0.83762	0.84202	0.84930

Table G.50 POWER OF KS-CV SEQUENTIAL TEST FOR N= 40 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.09546	0.09924	0.11310	0.13320	0.15762
0.05	0.19254	0.19264	0.19400	0.19826	0.20666
0.10	0.26700	0.26700	0.26736	0.26882	0.27182
0.15	0.32916	0.32916	0.32932	0.32982	0.33138
0.20	0.38632	0.38632	0.38640	0.38664	0.38766

Table G.51 POWER OF KS-CV SEQUENTIAL TEST FOR N= 40 Against lognormal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06604	0.15024	0.23280	0.30882	0.36970
0.05	0.13814	0.18038	0.24508	0.31436	0.37242
0.10	0.21878	0.23666	0.27934	0.33430	0.38428
0.15	0.28878	0.29552	0.32180	0.36250	0.40362
0.20	0.35454	0.35644	0.37046	0.39950	0.43168

Table G.52 POWER OF KS-CV SEQUENTIAL TEST FOR N= 40 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.19138	0.19844	0.22672	0.27620	0.33372
0.05	0.35018	0.35082	0.35556	0.37064	0.39728
0.10	0.45718	0.45734	0.45928	0.46598	0.47974
0.15	0.53458	0.53468	0.53564	0.54022	0.54866
0.20	0.60022	0.60026	0.60082	0.60378	0.60910

Table G.53 POWER OF KS-CV SEQUENTIAL TEST FOR N= 40 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.36484	0.36484	0.36504	0.36620	0.36808
0.05	0.54504	0.54504	0.54504	0.54506	0.54512
0.10	0.64134	0.64134	0.64134	0.64134	0.64134
0.15	0.69936	0.69936	0.69936	0.69936	0.69936
0.20	0.74376	0.74376	0.74376	0.74376	0.74376

Table G.54 POWER OF KS-CV SEQUENTIAL TEST FOR N= 40 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01492	0.05358	0.10182	0.15322	0.20022
0.05	0.05350	0.07164	0.10934	0.15660	0.20186
0.10	0.10256	0.10954	0.13390	0.17126	0.21074
0.15	0.15026	0.15280	0.16686	0.19396	0.22668
0.20	0.19882	0.19952	0.20704	0.22550	0.25032

Table G.55 POWER OF KS-CV SEQUENTIAL TEST FOR N= 50 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.52874	0.53632	0.57986	0.64682	0.71572
0.05	0.71544	0.71660	0.72500	0.74452	0.77444
0.10	0.80656	0.80702	0.81008	0.81802	0.83222
0.15	0.85678	0.85700	0.85844	0.86246	0.87004
0.20	0.89236	0.89246	0.89318	0.89550	0.89986

Table G.56 POWER OF KS-CV SEQUENTIAL TEST FOR N= 50 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12600	0.12826	0.13732	0.15172	0.17182
0.05	0.23322	0.23324	0.23388	0.23590	0.24050
0.10	0.31510	0.31510	0.31516	0.31552	0.31678
0.15	0.37956	0.37956	0.37958	0.37974	0.38040
0.20	0.43816	0.43816	0.43818	0.43824	0.43858

Table G.57 POWER OF KS-CV SEQUENTIAL TEST FOR N= 50 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07678	0.16754	0.25366	0.32584	0.39202
0.05	0.14986	0.19818	0.26672	0.33230	0.39506
0.10	0.23786	0.25824	0.30214	0.35396	0.40846
0.15	0.31108	0.31934	0.34614	0.38510	0.42936
0.20	0.37988	0.38324	0.39834	0.42496	0.45936

Table G.58 POWER OF KS-CV SEQUENTIAL TEST FOR N= 50 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.25084	0.25486	0.27414	0.31286	0.36550
0.05	0.41656	0.41686	0.41930	0.42802	0.44894
0.10	0.52806	0.52818	0.52906	0.53286	0.54196
0.15	0.60522	0.60530	0.60574	0.60774	0.61322
0.20	0.66754	0.66756	0.66776	0.66894	0.67252

Table G.59 POWER OF KS-CV SEQUENTIAL TEST FOR N= 50 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.47668	0.47668	0.47670	0.47680	0.47714
0.05	0.64812	0.64812	0.64812	0.64812	0.64814
0.10	0.73398	0.73398	0.73398	0.73398	0.73398
0.15	0.78394	0.78394	0.78394	0.78394	0.78394
0.20	0.82052	0.82052	0.82052	0.82052	0.82052

Table G.60 POWER OF KS-CV SEQUENTIAL TEST FOR N= 50 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01506	0.05176	0.10076	0.14912	0.19728
0.05	0.05054	0.06926	0.10856	0.15280	0.19906
0.10	0.09908	0.10644	0.13204	0.16702	0.20734
0.15	0.14602	0.14858	0.16410	0.19030	0.22360
0.20	0.19746	0.19830	0.20614	0.22388	0.24912

Table G.61 POWER OF KS-W SEQUENTIAL TEST FOR N= 10 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.14544	0.24336	0.32018	0.38164	0.43580
0.05	0.18250	0.25722	0.32560	0.38384	0.43644
0.10	0.25898	0.30360	0.35474	0.40154	0.44648
0.15	0.34218	0.36816	0.40278	0.43768	0.47340
0.20	0.42074	0.43576	0.45872	0.48372	0.51084

Table G.62 POWER OF KS-W SEQUENTIAL TEST FOR N= 10 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06276	0.12676	0.18772	0.23992	0.28840
0.05	0.07316	0.13044	0.18880	0.24020	0.28840
0.10	0.10416	0.14760	0.19818	0.24502	0.29068
0.15	0.14624	0.17686	0.21772	0.25818	0.29874
0.20	0.19560	0.21636	0.24806	0.28096	0.31580

Table G.63 POWER OF KS-W SEQUENTIAL TEST FOR N= 10 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02208	0.06038	0.11686	0.16988	0.22366
0.05	0.07154	0.08660	0.12552	0.17238	0.22426
0.10	0.12860	0.13674	0.15928	0.19178	0.23324
0.15	0.18490	0.19070	0.20530	0.22742	0.25776
0.20	0.24010	0.24442	0.25450	0.27012	0.29170

Table G.64 POWER OF KS-W SEQUENTIAL TEST FOR N= 10 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.08944	0.16632	0.23280	0.28928	0.34150
0.05	0.10848	0.17378	0.23530	0.29004	0.34170
0.10	0.15880	0.20328	0.25248	0.30012	0.34684
0.15	0.22082	0.24904	0.28592	0.32434	0.36408
0.20	0.28646	0.30384	0.32986	0.35958	0.39138

Table G.65 POWER OF KS-W SEQUENTIAL TEST FOR N= 10 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.13014	0.24242	0.32258	0.38700	0.44234
0.05	0.13884	0.24346	0.32272	0.38700	0.44234
0.10	0.17562	0.25294	0.32554	0.38806	0.44266
0.15	0.21662	0.27212	0.33426	0.39204	0.44460
0.20	0.25826	0.29780	0.34912	0.40044	0.44950

Table G.66 POWER OF KS-W SEQUENTIAL TEST FOR N= 10 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01350	0.04998	0.10172	0.15112	0.20092
0.05	0.05202	0.06564	0.10524	0.15166	0.20098
0.10	0.10056	0.10510	0.12706	0.16142	0.20454
0.15	0.14912	0.15120	0.16274	0.18568	0.21874
0.20	0.19866	0.19992	0.20634	0.22074	0.24414

Table G.67 POWER OF KS-W SEQUENTIAL TEST FOR N= 20 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.34478	0.46916	0.54838	0.60448	0.65444
0.05	0.39112	0.48354	0.55358	0.60706	0.65516
0.10	0.46910	0.52526	0.57734	0.62074	0.66272
0.15	0.54436	0.57712	0.61322	0.64556	0.67868
0.20	0.61170	0.63014	0.65432	0.67762	0.70222

Table G.68 POWER OF KS-W SEQUENTIAL TEST FOR N= 20 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.14982	0.23576	0.30122	0.35222	0.39850
0.05	0.15842	0.23802	0.30174	0.35240	0.39856
0.10	0.18632	0.25014	0.30780	0.35560	0.40028
0.15	0.22564	0.27284	0.32166	0.36434	0.40580
0.20	0.27040	0.30374	0.34290	0.37950	0.41686

Table G.69 POWER OF KS-W SEQUENTIAL TEST FOR N= 20 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03700	0.08982	0.15500	0.21702	0.27774
0.05	0.10040	0.12086	0.16538	0.22022	0.27864
0.10	0.16680	0.17714	0.20156	0.23910	0.28728
0.15	0.22852	0.23520	0.24998	0.27438	0.30978
0.20	0.28770	0.29226	0.30172	0.31750	0.34266

Table G.70 POWER OF KS-W SEQUENTIAL TEST FOR N= 20 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.21494	0.31996	0.39486	0.45138	0.50288
0.05	0.23620	0.32676	0.39732	0.45240	0.50324
0.10	0.28622	0.35168	0.41082	0.45998	0.50738
0.15	0.34636	0.39084	0.43672	0.47742	0.51876
0.20	0.41172	0.43966	0.47332	0.50500	0.53892

Table G.71 POWER OF KS-W SEQUENTIAL TEST FOR N= 20 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.31030	0.44524	0.52814	0.58544	0.63494
0.05	0.33236	0.44782	0.52840	0.58548	0.63494
0.10	0.38136	0.46312	0.53314	0.58708	0.63544
0.15	0.43314	0.48758	0.54474	0.59250	0.63780
0.20	0.47994	0.51704	0.56146	0.60242	0.64340

Table G.72 POWER OF KS-W SEQUENTIAL TEST FOR N= 20 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01528	0.05308	0.10266	0.15218	0.20204
0.05	0.05314	0.06812	0.10674	0.15316	0.20218
0.10	0.10210	0.10656	0.12708	0.16314	0.20590
0.15	0.15198	0.15336	0.16240	0.18574	0.21898
0.20	0.20158	0.20200	0.20640	0.21982	0.24280

Table G.73 POWER OF KS-W SEQUENTIAL TEST FOR N= 30 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.49146	0.61866	0.69124	0.74232	0.78288
0.05	0.54402	0.63340	0.69644	0.74454	0.78358
0.10	0.62422	0.67276	0.71758	0.75662	0.78978
0.15	0.69144	0.71832	0.74768	0.77608	0.80252
0.20	0.74744	0.76158	0.78006	0.79964	0.81958

Table G.74 POWER OF KS-W SEQUENTIAL TEST FOR N= 30 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.21000	0.31390	0.38302	0.43608	0.48234
0.05	0.21896	0.31608	0.38368	0.43632	0.48238
0.10	0.24932	0.32692	0.38846	0.43864	0.48346
0.15	0.28816	0.34674	0.39984	0.44528	0.48770
0.20	0.33234	0.37434	0.41770	0.45748	0.49618

Table G.75 POWER OF KS-W SEQUENTIAL TEST FOR N= 30 Against lognormal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04418	0.10546	0.17894	0.24738	0.31112
0.05	0.11340	0.13710	0.18902	0.25044	0.31194
0.10	0.18962	0.19974	0.22690	0.27002	0.32114
0.15	0.25658	0.26270	0.27822	0.30530	0.34336
0.20	0.31944	0.32328	0.33282	0.34978	0.37630

Table G.76 POWER OF KS-W SEQUENTIAL TEST FOR N= 30 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.30828	0.43008	0.50722	0.56552	0.61440
0.05	0.33286	0.43620	0.50940	0.56638	0.61476
0.10	0.39186	0.46286	0.52374	0.57414	0.61918
0.15	0.45534	0.50128	0.54790	0.58948	0.62910
0.20	0.51882	0.54780	0.58148	0.61388	0.64686

Table G.77 POWER OF KS-W SEQUENTIAL TEST FOR N= 30 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.43874	0.57900	0.65538	0.70582	0.74440
0.05	0.47276	0.58318	0.65608	0.70594	0.74440
0.10	0.53258	0.60158	0.66228	0.70808	0.74514
0.15	0.58588	0.62996	0.67622	0.71480	0.74850
0.20	0.63140	0.65938	0.69426	0.72540	0.75478

Table G.78 POWER OF KS-W SEQUENTIAL TEST FOR N= 30 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01478	0.05274	0.10130	0.15414	0.20304
0.05	0.05206	0.06742	0.10538	0.15496	0.20328
0.10	0.10318	0.10772	0.12832	0.16558	0.20794
0.15	0.15502	0.15600	0.16502	0.18886	0.22072
0.20	0.20288	0.20322	0.20728	0.22078	0.24310

Table G.79 POWER OF KS-W SEQUENTIAL TEST FOR N= 40 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.62142	0.73414	0.79556	0.83502	0.86418
0.05	0.67508	0.74912	0.80054	0.83708	0.86494
0.10	0.74258	0.78296	0.81806	0.84630	0.87014
0.15	0.79558	0.81704	0.83952	0.86014	0.87898
0.20	0.83838	0.84950	0.86320	0.87702	0.89122

Table G.80 POWER OF KS-W SEQUENTIAL TEST FOR N= 40 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.27898	0.38968	0.46084	0.51442	0.55686
0.05	0.28960	0.39180	0.46142	0.51454	0.55688
0.10	0.31902	0.40202	0.46554	0.51648	0.55786
0.15	0.35766	0.42032	0.47566	0.52244	0.56166
0.20	0.40186	0.44728	0.49230	0.53298	0.56878

Table G.81 POWER OF KS-W SEQUENTIAL TEST FOR N= 40 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05590	0.12488	0.20840	0.28266	0.34690
0.05	0.13846	0.16414	0.22120	0.28664	0.34812
0.10	0.22020	0.23152	0.26158	0.30736	0.35870
0.15	0.28972	0.29616	0.31272	0.34240	0.38042
0.20	0.35492	0.35900	0.36884	0.38714	0.41282

Table G.82 POWER OF KS-W SEQUENTIAL TEST FOR N= 40 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.40510	0.52752	0.60484	0.65890	0.70154
0.05	0.43508	0.53594	0.60778	0.66020	0.70214
0.10	0.49228	0.56166	0.61980	0.66638	0.70560
0.15	0.55036	0.59632	0.64102	0.68008	0.71414
0.20	0.60736	0.63574	0.66740	0.69874	0.72724

Table G.83 POWER OF KS-W SEQUENTIAL TEST FOR N= 40 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.55292	0.68594	0.75292	0.79582	0.82760
0.05	0.59780	0.69276	0.75420	0.79610	0.82768
0.10	0.66048	0.71626	0.76270	0.79958	0.82892
0.15	0.70820	0.74224	0.77576	0.80650	0.83256
0.20	0.74806	0.76910	0.79272	0.81692	0.83852

Table G.84 POWER OF KS-W SEQUENTIAL TEST FOR N= 40 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01466	0.05182	0.10242	0.15348	0.20490
0.05	0.05318	0.06772	0.10684	0.15478	0.20530
0.10	0.10248	0.10650	0.12902	0.16578	0.21000
0.15	0.15026	0.15152	0.16190	0.18726	0.22248
0.20	0.19882	0.19918	0.20418	0.21852	0.24394

Table G.85 POWER OF KS-W SEQUENTIAL TEST FOR N= 50 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.71270	0.80988	0.85760	0.88798	0.91012
0.05	0.76166	0.82354	0.86264	0.88982	0.91066
0.10	0.81954	0.85088	0.87696	0.89724	0.91466
0.15	0.86120	0.87746	0.89370	0.90806	0.92124
0.20	0.89422	0.90200	0.91206	0.92120	0.93082

Table G.86 POWER OF KS-W SEQUENTIAL TEST FOR N= 50 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.33422	0.44860	0.51870	0.56744	0.60992
0.05	0.34462	0.45060	0.51936	0.56758	0.60996
0.10	0.37368	0.46052	0.52370	0.56954	0.61088
0.15	0.41168	0.47750	0.53222	0.57442	0.61370
0.20	0.45560	0.50336	0.54804	0.58500	0.62060

Table G.87 POWER OF KS-W SEQUENTIAL TEST FOR N= 50 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06358	0.14134	0.22490	0.29814	0.36542
0.05	0.14958	0.17986	0.23850	0.30278	0.36672
0.10	0.23912	0.25204	0.28314	0.32662	0.37928
0.15	0.31178	0.31880	0.33598	0.36400	0.40280
0.20	0.38022	0.38448	0.39442	0.41200	0.43800

Table G.88 POWER OF KS-W SEQUENTIAL TEST FOR N= 50 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.47872	0.60208	0.67250	0.72010	0.75924
0.05	0.50778	0.60986	0.67522	0.72124	0.75970
0.10	0.56506	0.63358	0.68698	0.72730	0.76252
0.15	0.62182	0.66510	0.70568	0.73936	0.76990
0.20	0.67498	0.70096	0.73008	0.75626	0.78162

Table G.89 POWER OF KS-W SEQUENTIAL TEST FOR N= 50 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.63996	0.75680	0.81226	0.84666	0.87236
0.05	0.69006	0.76580	0.81480	0.84748	0.87256
0.10	0.74720	0.78882	0.82376	0.85126	0.87408
0.15	0.78968	0.81352	0.83742	0.85916	0.87824
0.20	0.82304	0.83692	0.85342	0.86932	0.88462

Table G.90 POWER OF KS-W SEQUENTIAL TEST FOR N= 50 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01438	0.05056	0.09910	0.14476	0.19620
0.05	0.05016	0.06498	0.10378	0.14652	0.19670
0.10	0.09898	0.10344	0.12566	0.15794	0.20188
0.15	0.14602	0.14730	0.15824	0.17970	0.21444
0.20	0.19746	0.19782	0.20250	0.21492	0.23946

Table G.91 POWER OF AD-CV SEQUENTIAL TEST FOR N= 10 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03306	0.08408	0.18284	0.28964	0.39196
0.05	0.15320	0.15408	0.18662	0.28968	0.39196
0.10	0.30358	0.30358	0.30528	0.32374	0.39490
0.15	0.43372	0.43372	0.43372	0.43582	0.45034
0.20	0.54200	0.54200	0.54200	0.54204	0.54558

Table G.92 POWER OF AD-CV SEQUENTIAL TEST FOR N= 10 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.00722	0.02296	0.05450	0.09396	0.14036
0.05	0.04342	0.04434	0.05574	0.09398	0.14036
0.10	0.09654	0.09654	0.09876	0.11028	0.14170
0.15	0.15972	0.15972	0.15976	0.16366	0.17588
0.20	0.22984	0.22984	0.22984	0.23010	0.23544

Table G.93 POWER OF AD-CV SEQUENTIAL TEST FOR N= 10 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02486	0.08046	0.14230	0.20200	0.26018
0.05	0.08642	0.09126	0.14254	0.20204	0.26018
0.10	0.15464	0.15464	0.16302	0.20622	0.26070
0.15	0.22160	0.22160	0.22164	0.23370	0.27020
0.20	0.28768	0.28768	0.28768	0.28828	0.30124

Table G.94 POWER OF AD-CV SEQUENTIAL TEST FOR N= 10 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01440	0.04260	0.09660	0.16628	0.24310
0.05	0.07860	0.07952	0.09920	0.16628	0.24310
0.10	0.17146	0.17146	0.17344	0.19144	0.24554
0.15	0.27150	0.27150	0.27150	0.27534	0.29186
0.20	0.36714	0.36714	0.36714	0.36746	0.37230

Table G.95 POWER OF AD-CV SEQUENTIAL TEST FOR N= 10 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01572	0.03566	0.07062	0.10378	0.13960
0.05	0.07080	0.07080	0.07354	0.10380	0.13960
0.10	0.12776	0.12776	0.12780	0.12804	0.14134
0.15	0.18384	0.18384	0.18384	0.18392	0.18432
0.20	0.23848	0.23848	0.23848	0.23852	0.23872

Table G.96 POWER OF AD-CV SEQUENTIAL TEST FOR N= 10 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01110	0.04988	0.09900	0.14928	0.20064
0.05	0.04906	0.05468	0.09906	0.14928	0.20064
0.10	0.09762	0.09762	0.10888	0.15094	0.20076
0.15	0.14824	0.14824	0.14836	0.16420	0.20432
0.20	0.19710	0.19710	0.19710	0.19856	0.21940

Table G.97 POWER OF AD-CV SEQUENTIAL TEST FOR N= 20 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.10908	0.17466	0.28282	0.38812	0.48390
0.05	0.27638	0.27650	0.29638	0.38860	0.48392
0.10	0.42894	0.42894	0.42950	0.43788	0.49092
0.15	0.55298	0.55298	0.55298	0.55362	0.55932
0.20	0.65766	0.65766	0.65766	0.65766	0.65806

Table G.98 POWER OF AD-CV SEQUENTIAL TEST FOR N= 20 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02602	0.04090	0.06720	0.09684	0.13042
0.05	0.06966	0.06994	0.07302	0.09696	0.13042
0.10	0.11474	0.11474	0.11536	0.11880	0.13422
0.15	0.16418	0.16418	0.16420	0.16522	0.17004
0.20	0.22160	0.22160	0.22160	0.22166	0.22286

Table G.99 POWER OF AD-CV SEQUENTIAL TEST FOR N= 20 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03958	0.10940	0.18088	0.24536	0.30358
0.05	0.11788	0.12234	0.18142	0.24536	0.30358
0.10	0.19380	0.19380	0.20184	0.24840	0.30396
0.15	0.26530	0.26530	0.26538	0.27552	0.31176
0.20	0.33348	0.33348	0.33348	0.33394	0.34322

Table G.100 POWER OF AD-CV SEQUENTIAL TEST FOR N= 20 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04876	0.07672	0.13038	0.19104	0.25836
0.05	0.12870	0.12880	0.13864	0.19110	0.25836
0.10	0.21848	0.21848	0.21890	0.22674	0.26376
0.15	0.31184	0.31184	0.31184	0.31286	0.32042
0.20	0.40766	0.40766	0.40766	0.40766	0.40896

Table G.101 POWER OF AD-CV SEQUENTIAL TEST FOR N= 20 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05876	0.08488	0.12388	0.16010	0.19240
0.05	0.13480	0.13480	0.13542	0.16056	0.19242
0.10	0.19658	0.19658	0.19658	0.19658	0.20146
0.15	0.24768	0.24768	0.24768	0.24768	0.24768
0.20	0.29564	0.29564	0.29564	0.29564	0.29564

Table G.102 POWER OF AD-CV SEQUENTIAL TEST FOR N= 20 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01076	0.05366	0.10222	0.15248	0.20142
0.05	0.05380	0.05916	0.10238	0.15248	0.20142
0.10	0.10178	0.10178	0.11234	0.15350	0.20154
0.15	0.15000	0.15000	0.15016	0.16496	0.20412
0.20	0.20112	0.20112	0.20112	0.20258	0.21964

Table G.103 POWER OF AD-CV SEQUENTIAL TEST FOR N= 30 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.18170	0.25160	0.37144	0.47942	0.57470
0.05	0.37288	0.37294	0.38836	0.47994	0.57474
0.10	0.54000	0.54000	0.54002	0.54494	0.58520
0.15	0.66350	0.66350	0.66350	0.66360	0.66596
0.20	0.75216	0.75216	0.75216	0.75216	0.75222

Table G.104 POWER OF AD-CV SEQUENTIAL TEST FOR N= 30 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04032	0.05374	0.07952	0.10758	0.13680
0.05	0.08578	0.08582	0.08738	0.10784	0.13680
0.10	0.13316	0.13316	0.13342	0.13484	0.14338
0.15	0.18082	0.18082	0.18082	0.18126	0.18284
0.20	0.23052	0.23052	0.23052	0.23054	0.23094

Table G.105 POWER OF AD-CV SEQUENTIAL TEST FOR N= 30 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04898	0.12726	0.20260	0.27346	0.33670
0.05	0.13788	0.14194	0.20296	0.27346	0.33670
0.10	0.22288	0.22288	0.22842	0.27640	0.33702
0.15	0.30178	0.30178	0.30180	0.30876	0.34506
0.20	0.36994	0.36994	0.36994	0.37022	0.37838

Table G.106 POWER OF AD-CV SEQUENTIAL TEST FOR N= 30 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07648	0.10768	0.16490	0.22756	0.29234
0.05	0.16898	0.16904	0.17594	0.22796	0.29234
0.10	0.26814	0.26814	0.26840	0.27310	0.30104
0.15	0.36440	0.36440	0.36440	0.36490	0.36884
0.20	0.45368	0.45368	0.45368	0.45370	0.45418

Table G.107 POWER OF AD-CV SEQUENTIAL TEST FOR N= 30 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.09124	0.11556	0.15958	0.19586	0.22838
0.05	0.17532	0.17532	0.17566	0.19702	0.22842
0.10	0.24066	0.24066	0.24066	0.24066	0.24292
0.15	0.29468	0.29468	0.29468	0.29468	0.29468
0.20	0.34006	0.34006	0.34006	0.34006	0.34006

Table G.108 POWER OF AD-CV SEQUENTIAL TEST FOR N= 30 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01206	0.05296	0.10368	0.15656	0.20596
0.05	0.05356	0.05858	0.10380	0.15656	0.20596
0.10	0.10534	0.10534	0.11458	0.15738	0.20602
0.15	0.15734	0.15734	0.15744	0.17090	0.20896
0.20	0.20580	0.20580	0.20580	0.20696	0.22326

Table G.109 POWER OF AD-CV SEQUENTIAL TEST FOR N= 40 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.26324	0.33078	0.45658	0.56494	0.65112
0.05	0.47206	0.47210	0.48206	0.56590	0.65116
0.10	0.63552	0.63552	0.63556	0.63798	0.66692
0.15	0.74292	0.74292	0.74292	0.74300	0.74398
0.20	0.81832	0.81832	0.81832	0.81832	0.81842

Table G.110 POWER OF AD-CV SEQUENTIAL TEST FOR N= 40 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05788	0.06962	0.09942	0.12708	0.15496
0.05	0.10952	0.10954	0.11024	0.12744	0.15496
0.10	0.15660	0.15660	0.15660	0.15730	0.16344
0.15	0.20220	0.20220	0.20220	0.20232	0.20330
0.20	0.25036	0.25036	0.25036	0.25038	0.25066

Table G.111 POWER OF AD-CV SEQUENTIAL TEST FOR N= 40 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06244	0.14876	0.23240	0.30874	0.36966
0.05	0.16240	0.16700	0.23278	0.30874	0.36966
0.10	0.25586	0.25586	0.26152	0.31192	0.37004
0.15	0.33500	0.33500	0.33502	0.34298	0.37764
0.20	0.40284	0.40284	0.40284	0.40302	0.41034

Table G.112 POWER OF AD-CV SEQUENTIAL TEST FOR N= 40 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.11234	0.14098	0.20216	0.26702	0.33000
0.05	0.21428	0.21432	0.21840	0.26772	0.33002
0.10	0.31790	0.31790	0.31798	0.32094	0.34350
0.15	0.41536	0.41536	0.41536	0.41556	0.41764
0.20	0.50514	0.50514	0.50514	0.50514	0.50528

Table G.113 POWER OF AD-CV SEQUENTIAL TEST FOR N= 40 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12640	0.14698	0.19248	0.23038	0.26252
0.05	0.21646	0.21646	0.21650	0.23254	0.26262
0.10	0.28274	0.28274	0.28274	0.28274	0.28360
0.15	0.33342	0.33342	0.33342	0.33342	0.33342
0.20	0.37826	0.37826	0.37826	0.37826	0.37826

Table G.114 POWER OF AD-CV SEQUENTIAL TEST FOR N= 40 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01174	0.05268	0.10158	0.15314	0.20022
0.05	0.05250	0.05780	0.10164	0.15314	0.20022
0.10	0.10290	0.10290	0.11208	0.15386	0.20030
0.15	0.15268	0.15268	0.15284	0.16646	0.20306
0.20	0.20138	0.20138	0.20138	0.20270	0.21858

Table G.115 POWER OF AD-CV SEQUENTIAL TEST FOR N= 50 Against gamma b=2.0 a=0.8

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.33634	0.39942	0.52622	0.62728	0.70920
0.05	0.55054	0.55054	0.55848	0.62880	0.70926
0.10	0.70700	0.70700	0.70704	0.70806	0.72870
0.15	0.80314	0.80314	0.80314	0.80314	0.80356
0.20	0.86500	0.86500	0.86500	0.86500	0.86500

Table G.116 POWER OF AD-CV SEQUENTIAL TEST FOR N= 50 Against weibull theta=.75 k=1.15

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06930	0.08024	0.11062	0.13742	0.16452
0.05	0.12346	0.12346	0.12380	0.13824	0.16456
0.10	0.17206	0.17206	0.17208	0.17226	0.17584
0.15	0.21648	0.21648	0.21648	0.21658	0.21700
0.20	0.26180	0.26180	0.26180	0.26180	0.26186

Table G.117 POWER OF AD-CV SEQUENTIAL TEST FOR N= 50 Against log-normal theta=0.5 a=1.0

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07430	0.16564	0.25324	0.32576	0.39200
0.05	0.18024	0.18460	0.25366	0.32576	0.39200
0.10	0.27854	0.27854	0.28458	0.32930	0.39220
0.15	0.35764	0.35764	0.35766	0.36422	0.40042
0.20	0.42848	0.42848	0.42848	0.42870	0.43644

Table G.118 POWER OF AD-CV SEQUENTIAL TEST FOR N= 50 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.14032	0.16566	0.22964	0.29170	0.35598
0.05	0.24640	0.24642	0.24958	0.29294	0.35604
0.10	0.35356	0.35356	0.35360	0.35474	0.37290
0.15	0.45004	0.45004	0.45004	0.45004	0.45144
0.20	0.53568	0.53568	0.53568	0.53568	0.53576

Table G.119 POWER OF AD-CV SEQUENTIAL TEST FOR N= 50 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.15698	0.17072	0.21830	0.25458	0.28454
0.05	0.24734	0.24734	0.24734	0.25866	0.28482
0.10	0.31208	0.31208	0.31208	0.31208	0.31224
0.15	0.36464	0.36464	0.36464	0.36464	0.36464
0.20	0.40832	0.40832	0.40832	0.40832	0.40832

Table G.120 POWER OF AD-CV SEQUENTIAL TEST FOR N= 50 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01232	0.05050	0.10040	0.14904	0.19726
0.05	0.05026	0.05556	0.10046	0.14904	0.19726
0.10	0.10088	0.10088	0.11040	0.15004	0.19732
0.15	0.15034	0.15034	0.15058	0.16362	0.20020
0.20	0.19878	0.19878	0.19878	0.19974	0.21534

Table G.121 POWER OF AD-V SEQUENTIAL TEST FOR N= 10 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04194	0.14612	0.24640	0.33804	0.41966
0.05	0.15320	0.18762	0.26428	0.34622	0.42410
0.10	0.30358	0.30716	0.33794	0.38984	0.44954
0.15	0.43372	0.43406	0.44178	0.46698	0.50338
0.20	0.54200	0.54206	0.54364	0.55326	0.57236

Table G.122 POWER OF AD-V SEQUENTIAL TEST FOR N= 10 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.00860	0.04464	0.09138	0.14116	0.19472
0.05	0.04350	0.05674	0.09518	0.14210	0.19534
0.10	0.09654	0.09960	0.12048	0.15646	0.20250
0.15	0.15972	0.16048	0.16904	0.19242	0.22654
0.20	0.22984	0.23006	0.23324	0.24548	0.26824

Table G.123 POWER OF AD-V SEQUENTIAL TEST FOR N= 10 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02860	0.07132	0.12778	0.18436	0.23984
0.05	0.08658	0.10210	0.14108	0.18954	0.24206
0.10	0.15464	0.15924	0.18054	0.21426	0.25678
0.15	0.22160	0.22292	0.23316	0.25504	0.28682
0.20	0.28768	0.28794	0.29260	0.30598	0.32836

Table G.124 POWER OF AD-V SEQUENTIAL TEST FOR N= 10 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01730	0.07556	0.14528	0.21642	0.28528
0.05	0.07862	0.09874	0.15416	0.21994	0.28708
0.10	0.17148	0.17462	0.20266	0.24840	0.30346
0.15	0.27150	0.27210	0.28156	0.30728	0.34526
0.20	0.36714	0.36732	0.37002	0.38178	0.40530

Table G.125 POWER OF AD-V SEQUENTIAL TEST FOR N= 10 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01886	0.08666	0.15598	0.21012	0.25988
0.05	0.07080	0.09494	0.15668	0.21018	0.25992
0.10	0.12776	0.13182	0.16880	0.21400	0.26100
0.15	0.18384	0.18398	0.19784	0.22880	0.26766
0.20	0.23848	0.23852	0.24102	0.25678	0.28452

Table G.126 POWER OF AD-V SEQUENTIAL TEST FOR N= 10 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01430	0.05220	0.10046	0.14906	0.19862
0.05	0.04940	0.06708	0.10590	0.15064	0.19904
0.10	0.09762	0.10434	0.12854	0.16292	0.20516
0.15	0.14824	0.15028	0.16416	0.18832	0.22168
0.20	0.19710	0.19786	0.20564	0.22178	0.24700

Table G.127 POWER OF AD-V SEQUENTIAL TEST FOR N= 20 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.17384	0.33266	0.44924	0.53630	0.60836
0.05	0.28178	0.36238	0.46132	0.54240	0.61182
0.10	0.42908	0.45180	0.50820	0.57018	0.62922
0.15	0.55300	0.55844	0.58350	0.62112	0.66324
0.20	0.65766	0.65850	0.66726	0.68600	0.71080

Table G.128 POWER OF AD-V SEQUENTIAL TEST FOR N= 20 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.03884	0.09506	0.15280	0.20680	0.26048
0.05	0.07102	0.10320	0.15518	0.20776	0.26080
0.10	0.11488	0.12860	0.16680	0.21368	0.26368
0.15	0.16420	0.16900	0.19222	0.23002	0.27318
0.20	0.22160	0.22310	0.23572	0.26120	0.29500

Table G.129 POWER OF AD-V SEQUENTIAL TEST FOR N= 20 Against lognormal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04578	0.10064	0.16582	0.22764	0.28708
0.05	0.11876	0.14042	0.18410	0.23652	0.29106
0.10	0.19398	0.20262	0.22792	0.26516	0.30932
0.15	0.26532	0.26888	0.28290	0.30780	0.34112
0.20	0.33348	0.33484	0.34202	0.35764	0.38150

Table G.130 POWER OF AD-V SEQUENTIAL TEST FOR N= 20 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07472	0.17058	0.25684	0.33244	0.40568
0.05	0.13126	0.18510	0.26172	0.33462	0.40690
0.10	0.21860	0.23802	0.28918	0.35016	0.41586
0.15	0.31186	0.31750	0.34438	0.38738	0.43946
0.20	0.40766	0.40906	0.42016	0.44530	0.48174

Table G.131 POWER OF AD-V SEQUENTIAL TEST FOR N= 20 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12992	0.26336	0.35262	0.41890	0.47252
0.05	0.15156	0.26456	0.35286	0.41896	0.47252
0.10	0.19858	0.27216	0.35482	0.41950	0.47272
0.15	0.24772	0.28832	0.35942	0.42112	0.47330
0.20	0.29564	0.31460	0.36896	0.42570	0.47552

Table G.132 POWER OF AD-V SEQUENTIAL TEST FOR N= 20 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01534	0.05360	0.10212	0.15198	0.20156
0.05	0.05466	0.07358	0.11088	0.15508	0.20298
0.10	0.10194	0.11096	0.13524	0.16986	0.21130
0.15	0.15002	0.15394	0.16982	0.19476	0.22880
0.20	0.20112	0.20326	0.21268	0.23004	0.25644

Table G.133 POWER OF AD-V SEQUENTIAL TEST FOR N= 30 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.29604	0.48404	0.60542	0.68450	0.74484
0.05	0.38812	0.50366	0.61266	0.68834	0.74722
0.10	0.54108	0.57894	0.64766	0.70810	0.75888
0.15	0.66356	0.67430	0.70780	0.74526	0.78232
0.20	0.75216	0.75512	0.76902	0.79056	0.81442

Table G.134 POWER OF AD-V SEQUENTIAL TEST FOR N= 30 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06432	0.13610	0.20634	0.26492	0.31986
0.05	0.09066	0.14062	0.20710	0.26502	0.31990
0.10	0.13398	0.15928	0.21380	0.26768	0.32114
0.15	0.18090	0.19274	0.23108	0.27684	0.32656
0.20	0.23052	0.23582	0.26048	0.29664	0.33852

Table G.135 POWER OF AD-V SEQUENTIAL TEST FOR N= 30 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05690	0.11526	0.18896	0.25596	0.31900
0.05	0.13922	0.16324	0.21182	0.26758	0.32466
0.10	0.22308	0.23280	0.26048	0.30036	0.34672
0.15	0.30180	0.30610	0.32188	0.34820	0.38272
0.20	0.36994	0.37176	0.38068	0.39820	0.42394

Table G.136 POWER OF AD-V SEQUENTIAL TEST FOR N= 30 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.13042	0.25234	0.35806	0.44034	0.51240
0.05	0.17866	0.26118	0.36050	0.44160	0.51306
0.10	0.26938	0.30594	0.37964	0.45154	0.51896
0.15	0.36452	0.37854	0.42338	0.47782	0.53552
0.20	0.45368	0.45842	0.48310	0.51964	0.56400

Table G.137 POWER OF AD-V SEQUENTIAL TEST FOR N= 30 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.24580	0.40990	0.50960	0.57530	0.62660
0.05	0.25120	0.41002	0.50960	0.57530	0.62660
0.10	0.27150	0.41128	0.50984	0.57538	0.62662
0.15	0.30462	0.41580	0.51062	0.57558	0.62668
0.20	0.34276	0.42304	0.51216	0.57592	0.62688

Table G.138 POWER OF AD-V SEQUENTIAL TEST FOR N= 30 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01604	0.05278	0.10330	0.15506	0.20292
0.05	0.05458	0.07368	0.11264	0.15902	0.20444
0.10	0.10556	0.11464	0.14090	0.17634	0.21550
0.15	0.15738	0.16216	0.17874	0.20456	0.23586
0.20	0.20580	0.20788	0.21878	0.23750	0.26196

Table G.139 POWER OF AD-V SEQUENTIAL TEST FOR N= 40 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.42130	0.62164	0.72564	0.78934	0.83598
0.05	0.49846	0.63530	0.73116	0.79204	0.83748
0.10	0.63824	0.69148	0.75584	0.80566	0.84536
0.15	0.74324	0.76120	0.79612	0.83052	0.86078
0.20	0.81840	0.82416	0.83974	0.85994	0.88032

Table G.140 POWER OF AD-V SEQUENTIAL TEST FOR N= 40 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.09718	0.19254	0.26702	0.32916	0.38632
0.05	0.12000	0.19462	0.26736	0.32922	0.38632
0.10	0.15882	0.20620	0.27106	0.33052	0.38708
0.15	0.20276	0.22868	0.28092	0.33460	0.38934
0.20	0.25052	0.26390	0.30124	0.34682	0.39636

Table G.141 POWER OF AD-V SEQUENTIAL TEST FOR N= 40 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07162	0.14098	0.21958	0.28898	0.35458
0.05	0.16410	0.19452	0.24824	0.30364	0.36146
0.10	0.25618	0.26810	0.30106	0.34030	0.38568
0.15	0.33510	0.34062	0.36036	0.38726	0.42140
0.20	0.40286	0.40558	0.41748	0.43536	0.46134

Table G.142 POWER OF AD-V SEQUENTIAL TEST FOR N= 40 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.19346	0.35026	0.45720	0.53460	0.60024
0.05	0.23432	0.35530	0.45854	0.53536	0.60076
0.10	0.32154	0.38696	0.47156	0.54280	0.60548
0.15	0.41604	0.44490	0.50310	0.56156	0.61710
0.20	0.50528	0.51740	0.55170	0.59410	0.63830

Table G.143 POWER OF AD-V SEQUENTIAL TEST FOR N= 40 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.36484	0.54504	0.64134	0.69936	0.74376
0.05	0.36598	0.54506	0.64134	0.69936	0.74376
0.10	0.37200	0.54528	0.64134	0.69936	0.74376
0.15	0.38470	0.54590	0.64140	0.69936	0.74376
0.20	0.40508	0.54758	0.64174	0.69940	0.74378

Table G.144 POWER OF AD-V SEQUENTIAL TEST FOR N= 40 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01596	0.05420	0.10282	0.15040	0.19886
0.05	0.05380	0.07396	0.11226	0.15498	0.20078
0.10	0.10334	0.11354	0.13950	0.17254	0.21214
0.15	0.15284	0.15792	0.17530	0.20018	0.23290
0.20	0.20146	0.20424	0.21614	0.23456	0.26026

Table G.145 POWER OF AD-V SEQUENTIAL TEST FOR N= 50 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.53014	0.71562	0.80662	0.85684	0.89240
0.05	0.59094	0.72544	0.81018	0.85850	0.89326
0.10	0.71252	0.76922	0.82838	0.86776	0.89834
0.15	0.80406	0.82494	0.85718	0.88466	0.90842
0.20	0.86514	0.87204	0.88832	0.90498	0.92154

Table G.146 POWER OF AD-V SEQUENTIAL TEST FOR N= 50 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.12714	0.23322	0.31510	0.37956	0.43816
0.05	0.14388	0.23470	0.31522	0.37958	0.43816
0.10	0.17778	0.24150	0.31660	0.38000	0.43826
0.15	0.21862	0.25874	0.32286	0.38284	0.43960
0.20	0.26232	0.28562	0.33556	0.38930	0.44286

Table G.147 POWER OF AD-V SEQUENTIAL TEST FOR N= 50 Against lognormal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.08380	0.15416	0.23956	0.31162	0.38014
0.05	0.18240	0.21272	0.26984	0.32726	0.38826
0.10	0.27904	0.29184	0.32554	0.36622	0.41400
0.15	0.35780	0.36402	0.38502	0.41338	0.44950
0.20	0.42850	0.43138	0.44404	0.46346	0.49038

Table G.148 POWER OF AD-V SEQUENTIAL TEST FOR N= 50 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.25206	0.41656	0.52806	0.60522	0.66754
0.05	0.28204	0.41986	0.52910	0.60572	0.66778
0.10	0.36198	0.44326	0.53754	0.61008	0.67016
0.15	0.45162	0.49264	0.56096	0.62278	0.67786
0.20	0.53610	0.55532	0.59914	0.64674	0.69328

Table G.149 POWER OF AD-V SEQUENTIAL TEST FOR N= 50 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.47668	0.64812	0.73398	0.78394	0.82052
0.05	0.47680	0.64814	0.73398	0.78394	0.82052
0.10	0.47822	0.64818	0.73398	0.78394	0.82052
0.15	0.48168	0.64830	0.73398	0.78394	0.82052
0.20	0.48866	0.64856	0.73400	0.78394	0.82052

Table G.150 POWER OF AD-V SEQUENTIAL TEST FOR N= 50 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01600	0.05120	0.09936	0.14608	0.19746
0.05	0.05190	0.07152	0.10918	0.15092	0.19970
0.10	0.10152	0.11152	0.13678	0.16996	0.21146
0.15	0.15070	0.15596	0.17302	0.19800	0.23254
0.20	0.19890	0.20186	0.21314	0.23182	0.25930

Table G.151 POWER OF AD-W SEQUENTIAL TEST FOR N= 10 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.14676	0.24452	0.32086	0.38198	0.43596
0.05	0.18366	0.27222	0.34290	0.39990	0.44968
0.10	0.30446	0.34620	0.40070	0.44750	0.48984
0.15	0.43372	0.44576	0.47934	0.51370	0.54618
0.20	0.54200	0.54444	0.55998	0.58190	0.60528

Table G.152 POWER OF AD-W SEQUENTIAL TEST FOR N= 10 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.06260	0.12680	0.18774	0.23992	0.28840
0.05	0.06824	0.13038	0.19018	0.24160	0.28948
0.10	0.09868	0.14650	0.20226	0.25124	0.29720
0.15	0.15982	0.18148	0.22760	0.27222	0.31458
0.20	0.22984	0.23670	0.26788	0.30462	0.34192

Table G.153 POWER OF AD-W SEQUENTIAL TEST FOR N= 10 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.02770	0.06348	0.11796	0.17012	0.22368
0.05	0.08818	0.10472	0.14200	0.18496	0.23224
0.10	0.15504	0.16478	0.18980	0.22162	0.25950
0.15	0.22160	0.22716	0.24460	0.26894	0.29870
0.20	0.28768	0.29022	0.30262	0.32134	0.34524

Table G.154 POWER OF AD-W SEQUENTIAL TEST FOR N= 10 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.08960	0.16658	0.23300	0.28940	0.34152
0.05	0.10646	0.17888	0.24200	0.29624	0.34688
0.10	0.17268	0.21846	0.27306	0.32242	0.36874
0.15	0.27150	0.28778	0.32698	0.36748	0.40720
0.20	0.36714	0.37126	0.39342	0.42270	0.45496

Table G.155 POWER OF AD-W SEQUENTIAL TEST FOR N= 10 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.13014	0.24242	0.32258	0.38700	0.44234
0.05	0.13082	0.24260	0.32264	0.38706	0.44238
0.10	0.14218	0.24494	0.32398	0.38798	0.44300
0.15	0.18466	0.25346	0.32806	0.39070	0.44486
0.20	0.23850	0.27226	0.33742	0.39632	0.44866

Table G.156 POWER OF AD-W SEQUENTIAL TEST FOR N= 10 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01372	0.05032	0.10172	0.15112	0.20092
0.05	0.04954	0.06656	0.10774	0.15364	0.20208
0.10	0.09770	0.10558	0.13288	0.16928	0.21164
0.15	0.14826	0.15216	0.16952	0.19698	0.23156
0.20	0.19710	0.19914	0.21084	0.23162	0.25944

Table G.157 POWER OF AD-W SEQUENTIAL TEST FOR N= 20 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.34390	0.46972	0.54878	0.60478	0.65454
0.05	0.37144	0.48848	0.56358	0.61696	0.66374
0.10	0.45410	0.53804	0.60054	0.64660	0.68722
0.15	0.55744	0.60428	0.65006	0.68716	0.72014
0.20	0.65834	0.67860	0.70786	0.73476	0.75954

Table G.158 POWER OF AD-W SEQUENTIAL TEST FOR N= 20 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.14968	0.23576	0.30122	0.35222	0.39850
0.05	0.15092	0.23666	0.30182	0.35270	0.39884
0.10	0.15826	0.24120	0.30524	0.35558	0.40136
0.15	0.18098	0.25334	0.31422	0.36298	0.40762
0.20	0.22574	0.27792	0.33238	0.37802	0.42020

Table G.159 POWER OF AD-W SEQUENTIAL TEST FOR N= 20 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.04544	0.09354	0.15596	0.21724	0.27782
0.05	0.12092	0.14418	0.18480	0.23304	0.28668
0.10	0.19576	0.21008	0.23696	0.27158	0.31448
0.15	0.26628	0.27620	0.29530	0.32092	0.35378
0.20	0.33378	0.34036	0.35384	0.37332	0.39888

Table G.160 POWER OF AD-W SEQUENTIAL TEST FOR N= 20 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.21458	0.32010	0.39496	0.45144	0.50292
0.05	0.22214	0.32558	0.39918	0.45476	0.50554
0.10	0.25542	0.34704	0.41604	0.46818	0.51662
0.15	0.32168	0.38720	0.44686	0.49374	0.53784
0.20	0.40916	0.44648	0.49248	0.53164	0.56988

Table G.161 POWER OF AD-W SEQUENTIAL TEST FOR N= 20 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.31016	0.44524	0.52814	0.58544	0.63494
0.05	0.31020	0.44526	0.52816	0.58544	0.63494
0.10	0.31086	0.44540	0.52824	0.58550	0.63498
0.15	0.31486	0.44600	0.52856	0.58564	0.63504
0.20	0.32734	0.44842	0.52956	0.58606	0.63526

Table G.162 POWER OF AD-W SEQUENTIAL TEST FOR N= 20 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01512	0.05318	0.10272	0.15218	0.20204
0.05	0.05458	0.07266	0.11020	0.15542	0.20314
0.10	0.10212	0.11052	0.13484	0.17074	0.21164
0.15	0.15010	0.15432	0.17016	0.19666	0.22968
0.20	0.20118	0.20348	0.21356	0.23296	0.25878

Table G.163 POWER OF AD-W SEQUENTIAL TEST FOR N= 30 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.48846	0.61876	0.69148	0.74246	0.78296
0.05	0.51086	0.63236	0.70152	0.74996	0.78870
0.10	0.58418	0.67264	0.72966	0.77126	0.80474
0.15	0.67570	0.72714	0.76866	0.80182	0.82878
0.20	0.75492	0.78178	0.80938	0.83364	0.85440

Table G.164 POWER OF AD-W SEQUENTIAL TEST FOR N= 30 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.20992	0.31388	0.38302	0.43608	0.48234
0.05	0.21034	0.31416	0.38322	0.43620	0.48244
0.10	0.21368	0.31626	0.38482	0.43752	0.48356
0.15	0.22670	0.32270	0.38960	0.44126	0.48668
0.20	0.25274	0.33542	0.39868	0.44860	0.49260

Table G.165 POWER OF AD-W SEQUENTIAL TEST FOR N= 30 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.05568	0.11042	0.18016	0.24766	0.31116
0.05	0.14138	0.16682	0.21152	0.26444	0.32030
0.10	0.22476	0.23986	0.26814	0.30624	0.35032
0.15	0.30288	0.31304	0.33292	0.36058	0.39440
0.20	0.37054	0.37782	0.39242	0.41314	0.43952

Table G.166 POWER OF AD-W SEQUENTIAL TEST FOR N= 30 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.30742	0.43010	0.50724	0.56554	0.61440
0.05	0.31216	0.43360	0.51010	0.56760	0.61588
0.10	0.33870	0.44892	0.52202	0.57714	0.62384
0.15	0.39342	0.48026	0.54586	0.59604	0.63962
0.20	0.46358	0.52392	0.57828	0.62214	0.66064

Table G.167 POWER OF AD-W SEQUENTIAL TEST FOR N= 30 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.43770	0.57900	0.65538	0.70582	0.74440
0.05	0.43770	0.57900	0.65538	0.70582	0.74440
0.10	0.43780	0.57904	0.65542	0.70582	0.74440
0.15	0.43840	0.57904	0.65542	0.70582	0.74440
0.20	0.44126	0.57924	0.65546	0.70584	0.74442

Table G.168 POWER OF AD-W SEQUENTIAL TEST FOR N= 30 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01544	0.05298	0.10132	0.15416	0.20304
0.05	0.05436	0.07214	0.10944	0.15712	0.20408
0.10	0.10564	0.11360	0.13676	0.17382	0.21436
0.15	0.15748	0.16152	0.17562	0.20250	0.23462
0.20	0.20580	0.20788	0.21692	0.23636	0.26150

Table G.169 POWER OF AD-W SEQUENTIAL TEST FOR N= 40 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.61790	0.73412	0.79582	0.83514	0.86428
0.05	0.63796	0.74498	0.80332	0.84084	0.86830
0.10	0.69750	0.77562	0.82322	0.85538	0.87946
0.15	0.76466	0.81488	0.85038	0.87568	0.89558
0.20	0.82488	0.85282	0.87778	0.89600	0.91146

Table G.170 POWER OF AD-W SEQUENTIAL TEST FOR N= 40 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.27884	0.38966	0.46084	0.51442	0.55686
0.05	0.27888	0.38970	0.46088	0.51444	0.55686
0.10	0.28046	0.39064	0.46166	0.51514	0.55742
0.15	0.28694	0.39354	0.46370	0.51690	0.55892
0.20	0.30292	0.40086	0.46900	0.52124	0.56260

Table G.171 POWER OF AD-W SEQUENTIAL TEST FOR N= 40 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.07308	0.13206	0.21006	0.28294	0.34694
0.05	0.16778	0.19694	0.24652	0.30264	0.35798
0.10	0.25900	0.27638	0.30834	0.34790	0.39116
0.15	0.33682	0.34874	0.37116	0.40024	0.43354
0.20	0.40398	0.41248	0.42914	0.45154	0.47718

Table G.172 POWER OF AD-W SEQUENTIAL TEST FOR N= 40 Against exponential theta=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.40420	0.52750	0.60486	0.65892	0.70156
0.05	0.40798	0.52990	0.60644	0.66010	0.70246
0.10	0.42854	0.54222	0.61530	0.66716	0.70808
0.15	0.47058	0.56680	0.63250	0.68054	0.71898
0.20	0.53000	0.60198	0.65828	0.70056	0.73544

Table G.173 POWER OF AD-W SEQUENTIAL TEST FOR N= 40 Against uniform

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.55132	0.68588	0.75292	0.79582	0.82760
0.05	0.55132	0.68588	0.75292	0.79582	0.82760
0.10	0.55134	0.68588	0.75292	0.79582	0.82760
0.15	0.55142	0.68590	0.75294	0.79584	0.82762
0.20	0.55208	0.68602	0.75298	0.79584	0.82762

Table G.174 POWER OF AD-W SEQUENTIAL TEST FOR N= 40 Against IGD mu=1

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01552	0.05246	0.10254	0.15350	0.20490
0.05	0.05328	0.07140	0.10970	0.15656	0.20624
0.10	0.10300	0.11114	0.13590	0.17276	0.21530
0.15	0.15272	0.15632	0.17232	0.19972	0.23418
0.20	0.20142	0.20328	0.21354	0.23340	0.26122

Table G.175 POWER OF AD-W SEQUENTIAL TEST FOR N= 50 Against gamma b=2.0 a=0.8

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.70824	0.80974	0.85784	0.88818	0.91026
0.05	0.72536	0.81828	0.86336	0.89206	0.91276
0.10	0.77420	0.84294	0.87942	0.90326	0.92068
0.15	0.82834	0.87210	0.89956	0.91810	0.93222
0.20	0.87406	0.89908	0.91848	0.93226	0.94314

Table G.176 POWER OF AD-W SEQUENTIAL TEST FOR N= 50 Against weibull theta=.75 k=1.15

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.33404	0.44860	0.51870	0.56744	0.60992
0.05	0.33412	0.44866	0.51872	0.56746	0.60994
0.10	0.33496	0.44906	0.51902	0.56766	0.61012
0.15	0.33838	0.45068	0.52020	0.56856	0.61092
0.20	0.34750	0.45536	0.52354	0.57112	0.61300

Table G.177 POWER OF AD-W SEQUENTIAL TEST FOR N= 50 Against log-normal theta=0.5 a=1.0

KS α / AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.08596	0.15016	0.22752	0.29900	0.36560
0.05	0.18670	0.21838	0.26814	0.32210	0.37836
0.10	0.28224	0.30172	0.33364	0.37136	0.41416
0.15	0.36010	0.37354	0.39602	0.42336	0.45614
0.20	0.42994	0.43916	0.45550	0.47602	0.50122

Table G.178 POWER OF AD-W SEQUENTIAL TEST FOR N= 50 Against exponential theta=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.47746	0.60198	0.67248	0.72010	0.75924
0.05	0.47986	0.60350	0.67356	0.72094	0.75996
0.10	0.49490	0.61178	0.67916	0.72544	0.76356
0.15	0.52904	0.62962	0.69170	0.73514	0.77102
0.20	0.57726	0.65692	0.71156	0.75062	0.78336

Table G.179 POWER OF AD-W SEQUENTIAL TEST FOR N= 50 Against uniform

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.63710	0.75676	0.81226	0.84666	0.87236
0.05	0.63710	0.75676	0.81226	0.84666	0.87236
0.10	0.63712	0.75676	0.81226	0.84666	0.87236
0.15	0.63714	0.75676	0.81226	0.84666	0.87236
0.20	0.63722	0.75676	0.81226	0.84666	0.87236

Table G.180 POWER OF AD-W SEQUENTIAL TEST FOR N= 50 Against IGD mu=1

KS α AD α	0.01	0.05	0.10	0.15	0.20
0.01	0.01608	0.05100	0.09924	0.14480	0.19620
0.05	0.05140	0.06936	0.10686	0.14836	0.19762
0.10	0.10122	0.10922	0.13304	0.16494	0.20686
0.15	0.15048	0.15456	0.16962	0.19344	0.22694
0.20	0.19882	0.20084	0.21058	0.22776	0.25428

vita

First Lieutenant Hüseyin Günes was born in Istanbul Turkey. He graduated from Kuleli Military High School in 1985. He then attended the Air Force Academy in Istanbul and in 1989 graduated with Bachelor of Science degree in Management.

Upon completing Personnel School in September 1990, he was assigned to the 4th Main Jet Base in Ankara. He served as a personnel officer and On-the-Job Training Manager.

On November 1992 he attended the Computer System's Analyst Program in Middle East Technical University, Ankara. He was then accepted for the Graduate Program in Operations Research at the School of Engineering, Air Force Institute of Technology, WPAFB, OH in 1993.

Address: Arapsuyu Havacilar mah. 4116 Sk.
Orsite Apt. C Blok Daire: 4
Antalya / Turkey

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Modified Kolmogorov-Smirnov (KS), Anderson-Darling (AD), Cramer-von Mises (CV), Kupier (V), and Watson (W) goodness-of-fit tests are generated for the inverse Gaussian distribution with unknown parameters. The inverse Gaussian parameters are estimated by maximum likelihood estimation. A Monte Carlo simulation of 50,000 repetitions is used to generate critical values for sample sizes of 5 through 50 with an increment of 5, samples of 60 through 100 with an increment of 10, and 24 different values of the inverse Gaussian shape parameters.

A 50,000-repetition Monte Carlo power study is carried out using data with sample sizes of 5 through 100 from 5 alternate distributions for the 5 EDF tests for significance levels of 0.01, 0.05, 0.10, 0.15, and 0.20. For sequential tests, power studies are performed for the significance levels produced by combining 2 EDF tests. Power studies corresponding to both cases are presented in tables and graphs. The power studies showed that the tests are excellent in discriminating between the inverse Gaussian and distributions such as the gamma, exponential and uniform that are very different in shape. However, they are relatively unable to discriminate between the inverse Gaussian distribution and distributions that are similar to the particular inverse Gaussian. The AD test has the highest power in most cases studied.

A functional relationship is identified between the modified KS, AD, CV, V, and W test statistics, sample size, and the inverse Gaussian shape parameter. The critical values are found to be a non-linear function of the shape parameters and sample sizes for the significance levels of 0.01, 0.05, 0.10, 0.15, and 0.20.

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